Creative ways to cash in on your software design creativity. IT Careers, page 92

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Siren call of Internet mail

UPS strike boosts E-mail traffic

By Barb Cole-Gomolski

MUCH TO THE DISMAY of some IS departments, frustrated end users turned to internal E-mail — such as Lotus Notes or Microsoft Corp.'s Exchange — and the Internet to transport sensitive company documents during the recent United Parcel Service strike.

According to electronic-mail service providers and a half-dozen information systems sites, mail volume — particularly messages with large attachments — was up 10% to 15% on average during the 15-day strike, which ended last week.

For example, Internet E-mail

UPS, page 114

Early adopters say 'net messaging slashes mail costs

By Barb Cole-Gomolski

THE FIRST WAVE of companies to rip out client/server or legacy mail systems in favor of pure Internet mail say they have slashed their administrative, software and training costs by as much as a third.

But they also are spending big to shore up missing features.

TCP/IP-based Internet messaging systems will let companies run thousands of users per server. Client/server systems such as Lotus Notes typically support several hundred users per server.

Software costs are generally lower, and companies can mix and match Internet mail clients and servers with ease.

But there are trade-offs.

Internet mail, page 12

PHOTO-ILLUSTRATION BY SUSAN DARNELL

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Hardball tactics irk IS managers

▸ *Stupid sales tricks backfire for pushy vendors*

By Thomas Hoffman and Craig Stedman

THE FIRST SIGN was the Oracle Corp. salesman's evasive answers to technical questions. Next came multiple daily telephone calls and unannounced visits to her office, said Maribeth Anderson, manager of technology at First Chicago Mercantile Services LLC in Chicago.

"Unfortunately, I don't have a back way out," she said. "It was getting to the point where it was almost harassment."

But Anderson really knew she was dealing with a salesman from hell when he tried to go over her head to make the sale.

He didn't make the sale. It went to archrival Informix Software, Inc., for reasons of both technology and sales tactics. But many information systems executives said Anderson's experience isn't unusual.

An exclusive *Computerworld* survey of IS managers found that 55% have experienced hard-sell or overly aggressive sales tactics from technology vendors. Of the 106 respondents, 40% reported a bad experience with a sales representa-

Hardball, page 28

New job candidates give IS the business

By Julia King

SCORES OF nurses, teachers, musicians and salespeople are beginning to hit the information systems job market as graduates of super-accelerated training programs designed to produce technology professionals quickly.

Savvy IS hiring managers would do well to consider them closely. In addition to crisp new certifications, today's quick-start career changers can offer employers a wealth of real-world business and industry experience.

Matthew Yournell, 24, is a

Job candidates, page 114

INTERNET EXPO BUSINESS

By Carol Sliwa Can **Java** cut it in the real world with a **heavy-duty** application? **Daiwa Securities** America, Inc. thinks so. The **New York**-based subsidiary of Daiwa Securities Co. in Tokyo this week will serve as **poster child** for the programming language, offering its case study at the Java Internet Business Expo in New York.

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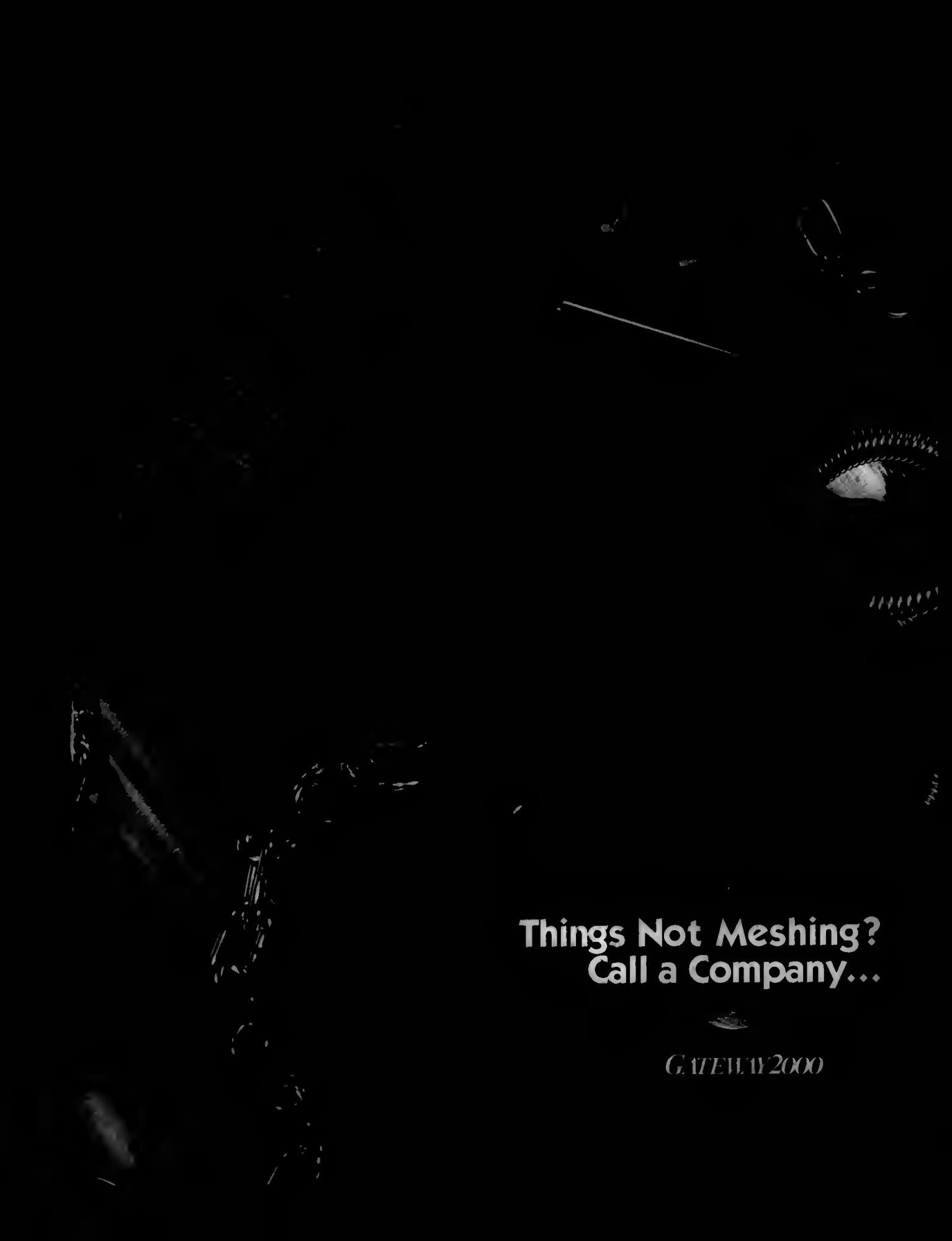
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NEWS

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TECHNICAL SECTIONS

ETC

Feds link IT, productivity but hard evidence lacking

By Thomas Hoffman

EVEN FEDERAL Reserve Chairman Alan Greenspan is now connecting information technology to sustainable productivity gains.

But is there any evidence it is true? Not even the Fed's statisticians can back it up with hard numbers.

In a recent poll of 200 CEOs and chief financial officers at the top 10% publicly held companies in the U.S., IT ranked third behind productivity and Federal Reserve policies as the key enablers behind the economy's recent growth, according to a survey conducted by *Investor's Business Daily* in New York and Technometrica Institute of Policy & Politics in Emerson, N.J.

Moreover, executives rank technological advancements as the top reason why the economy won't overheat in the near-term.

"We do not know, nor do I suspect can anyone know, whether current developments are part of a once-or twice-in-a-century phenomenon that will carry productivity trends ... to a new higher track," Greenspan told Congress last month.

More important, Greenspan admitted it is time for the Fed to create a way to measure the economy by assessing IT's impact on productivity.

MEASUREMENT TOOLS

Some economists say the measurement tools to gauge that impact have been available for years.

The problem, they say, is that the Fed hasn't gotten around to applying them.

Experts such as John W. Kendrick, a retired professor at George Washington University, devised ways to measure the impact of technology and research and development on productivity years ago, said John Mueller, vice president and chief economist at Lehrman Bell Mueller Cannon, Inc., an investment research firm in Arlington, Va.

Donald Allen, an economist at the Federal Reserve Bank of St. Louis, said there is a correlation between technology-savvy industries such as telecommunications and their increase in productivity.

Part of the problem is that in today's services-led economy, it is difficult to measure the "real" output of services such as consulting. "If you're looking at the productivity impact that IT has had on manufacturing, there's a strong correlation," Allen said. For service-based industries, "it's not as easily measurable," he added.

SOFT GAINS

The greatest benefits from IT investments aren't found in traditional areas such as cost savings and reduced head count, but in "intangible" areas such as quality improvements, timeliness and better service, said Erik Brynjolfsson, a professor at MIT's Sloan School of Management in Cambridge, Mass.

In a recent study of 800 Fortune 1,000 companies, Brynjolfsson and his colleagues found that companies with above-average investments in IT experience higher productivity growth. He estimated that IT has added 11.5% to productivity growth in the economy in the 1990s, or roughly $40 billion in aggregate output per year.

But contrarians insist IT still hasn't made an appreciable impact on productivity.

During the past 20 years of the so-called Information Age, "computers have taken over a great many processes in business, but productivity has not increased," said Kirkpatrick Sale, a Cold Spring, N.Y., author of *Rebels Against the Future: Lessons for the Computer Age*.

That's because "there's so much money being spent to teach people how to use, adapt and upgrade technologies that ultimately [the investments in technology] are not productive," Sale said. □

Document management systems take on new life as they get tied to the Internet. Buyer's Guide, page 71

Mark Stevens' firm logs sales calls from the field using wireless connections. Mobile Computing, page 65

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Feds link IT, productivity but hard evidence lacking

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UP FRONT

Revenge effect

In his 1996 book, *Why Things Bite Back*, Edward Tenner outlines the "revenge effect" in which technology that is applied to solve one problem inadvertently creates another. High-speed air travel allows diseases to spread; antibiotics breed drug-resistant bacteria; computers spark a surge in repetitive stress injuries.

E-mail and automated response systems, we're finding, can have revenge effects of their own. *Computerworld* last week launched a daily E-mail news service. We had tested the daylights out of our E-mail server, or so we thought. But the launch didn't go quite as we expected.

Thousands of E-mails went to people who weren't supposed to receive them. And many people who wanted to subscribe to the service couldn't. Late in the week, our server choked, and we had to shut down for a few days to fix it.

That is just one of many mass-mail horror stories. Recently, a colleague from another publication wrote about the disaster that occurred when he invoked his E-mail autoresponder while away on vacation. The autoresponder got locked in a deadly embrace with another E-mail server and generated more than 100,000 messages in a week. The inadvertent spam attack shut down a mail server and sparked a legal threat from the recipient.

Tomorrow's spammer may be you.

Last winter, my community was plagued by mysterious telephone calls that woke hundreds of residents in the middle of the night and then hung up. After covering the story for several days in its pages, a local newspaper sheepishly edmitted that the culprit was its own telemarketing autodialer gone askew.

To the victims of our incorrigible E-mail server, you have my sincere apologies and promise that things will be fixed this week. In the meantime, send me your own horror stories of misfired E-mail. We'll publish the best in e future letters page.

Paul Gillin, *Editor*
Internet: *paul_gillin@cw.com*

THE FIFTH WAVE
BY RICH TENNANT

E-mail Rich Tennant at thewave@tiac.net

Browsers get tricky

▸ IS faces training issues in new, more complex Web products

By Carol Sliwa

FOR THE PAST few years World Wide Web browsers have been so easy to use that many companies just rolled them out and let their employees figure out how to use them.

But a new wave of more complex feature-packed browsers will bring some training and support issues that information systems departments haven't had to confront seriously users said

"I had assumed, like everybody else that the browser was going to be relatively simple," said David Schaefer, an assistant vice president in the information services division at Commerce Bancshares, Inc. in Kansas City, Mo

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For example Microsoft Corp's Internet Explorer 4.0 Web browser, which ships at the end of September, will give users a whole new navigation experience.

Integrated with the Windows 95 and Windows NT operating systems, Internet Explorer 4.0 lets users view files on their local hard drives the same way they view Web pages.

But some companies said that may be too drastic a change for their users to digest

For example, with Microsoft's new "shell integration," a user who goes into Network Neighborhood or My Computer and expects to find a window instead gets a browser interface with a Hypertext Markup Language page, tool bar, favorites and space to type a uniform resource locator, which launches directly to the Internet.

Fearing end-user confusion, Schaefer said he will recommend that his company disable the feature. "There's no clear lines anymore of demarcation between your desktop, the network and the world " he said.

At Wheat Butcher First Singer, a nationwide financial services firm in Richmond, Va., Web administrator Pamela Edwards is concerned about something as seemingly innocuous as the switch to single, rather than double, clicks.

She said functions that previously required a single click, such as marking a series of files to copy, now require hovering the mouse over them and depressing the shift key instead of clicking.

Chris Carper, Microsoft's product manager for Internet Explorer said the new features are based on customer feedback and usability testing. He said users can disable any feature they don't want.

And that is exactly what Edwards plans to do with many of the fancy new features to avoid the "significant expense" to train users.

Fred Ghahramani, technical services manager at First Data Inc.'s Card Services Group in Omaha, said he never found a pressing need to train users with the early, more "intuitive" browsers. Now that the Internet Explorer 4.0 browser is more complex, he knows he should but he doesn't have the manpower to train the 1,200 users under his watch

But Ghahramani plans an innovative, cost-effective solution. He said he will run remote classrooms at the users' desktops through the NetShow streaming video/audio feature.

Internet Explorer isn't the only browser that is creating more training issues IS managers said.

Companies face the same issues if they choose to use Netscape Communication Corp.'s full Communicator groupware and/or its new Netcaster push component, which creates a user interface replete with channels for automatically delivering content to end users.

"You have a feature-laden product out there from both companies, so it's going to require more end-user training no matter what," said Paul Bleimeyer, a senior systems administrator at the Rochester, Minn.-based Mayo Foundation, which deploys both browsers. "Otherwise, your help desk pays the price."□

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Oracle targets not-so-thin clients

By Craig Stedman

ORACLE CORP. may be one of the loudest proponents of network computers, but even it isn't turning a blind eye to the strains that server-based computing can put on applications.

Oracle is upgrading its World Wide Web-enabled Developer/2000 development tool with features aimed at keeping thin-client throughput from being throttled by network traffic.

Included will be the ability to download more processing from application servers to client boxes. That would require more memory at the desktop, making clients not so thin.

But several early users of Developer/2000 for the Web said leaning more heavily on clients could keep data-intensive applications from bogging down.

With the initial server-centric Web release of Developer/2000, "performance is not as stellar as one would like," said an enterprise architect at a major insurance company in the Northeast who asked not to be identified. "The Web is just not the fastest environment in the world."

TOOL TIME AT ORACLE

Product	Key features	Availability
Developer/2000 2.0	Improved user interface, initial object support	Fourth quarter
Designer/2000 2.0	New version of database modeler with Oracle8 object support	Beta testing starts this week
Object Database Designer	New tool for building Oracle8 database objects	In beta this fall

SIMPLER TO USE

Developers said the promised additions to Developer/2000 could free up customers to download different amounts of application logic to individual browser users. And no code would have to be rewritten.

Developer/2000, which has been Oracle's workhorse tool for building two-tier database applications, got Web support in the spring. But users have to send requests to a server in order to do virtually all processing.

Steve Ehrlich, senior director of tools product marketing at Oracle in Redwood Shores, Calif., said support for combining multiple processing requests into a single network transmission is targeted for a fourth-quarter release.

The ability to download pieces of server-based applications to clients should follow in the first half of next year, Ehrlich said. More memory would be needed at the desktop, "but it still wouldn't be a traditional fat client in any sense," he said.

Larger downloads might increase application start-up time, said Scott Fabian, graphical application development manager at Burlington Coat Factory Warehouse Corp. in Burlington, N.J. "But performance after that is potentially going to be better, and we have a lot of users who are in applications all day long." □

Oracle's object tool plans are still murky. Page 55

HP to unveil migration plans to 64-bit computing

By Jaikumar Vijayan

WITH MOST of its major product announcements for the year already under its belt, Palo Alto, Calif.-based Hewlett-Packard Co. will use this week's HP World show in Chicago to hammer home its message of an "Extended Enterprise" and its "Pervasive Solutions" framework to take users there.

Extended Enterprise refers to HP's long-term strategy to build an Internet-enabled enterprise that links a company's employees, customers, business partners and suppliers via the World Wide Web. The Pervasive Solutions framework is the technology to get them there.

BIG SHIFTS

Over the next few years, the strategy will result in some fairly significant technology shifts for HP users. That includes a move to 64-bit Unix this fall and a transition from PA-RISC architectures to the IA-64 chip technology being jointly developed with Intel Corp.

HP has said users can choose their own pace to migrate to the new technologies. Meanwhile, the company will continue to support existing platforms for as long as needed.

"HP will want to make very clear to users what the migration will look like and what to expect" when moving to these technologies, said Jean Bozman, an analyst at International Data Corp. in Mountain View, Calif.

Details expected at the show include HP's plans to set up regional transition centers to educate users about the new technologies and its efforts with independent software vendors to port and develop new applications around the emerging technologies.

The company also is expected to disclose early details on the IA-64 chip architecture, including a better indication of when products based on the technology will be available.

"There's been a lot of interest in these topics in our user groups for some time," said Jeff Odom, chairman of Interex, the user group that organized the show. □

MCI watches optical switch field trial

▶ *Cross-connect system can restore traffic fast*

By Matt Hamblen

MCI COMMUNICATIONS Corp. today begins a field trial of a new backbone technology to replace electronic switching with more reliable optical devices.

The optical "cross connect" will be used on a fiber ring in Dallas to test live voice, video and data applications.

The use of an optical cross-connect system is "a very big step forward for the optical network," said John Ryan, a principal at Ryan Hankin Kent, Inc., a consultancy in South San Francisco, Calif.

"With a tidal wave of available bandwidth coming, it's important for enterprise users that bandwidth be reliable. Large corporate customers are making sure carriers have fast and predictable recovery," Ryan said.

QUICKER RESTORATION

With an optical cross connect, MCI, based in Washington, can restore network traffic in the event of a cable break much quicker than with electronic cross connects.

AT&T Corp. in Basking Ridge, N.J., said it is studying optical cross connects.

Sprint Corp. in Kansas City, Mo., is testing optical cross connects in Burlingame, Calif., for different purposes than restoring breaks in its network, a spokesman said.

Sprint already can restore a network break within 60 msec over 60% of its domestic network using a four-fiber, bidirectional line-switched system. That percentage will reach 100% by mid-1998, the spokesman said. □

Continental Airlines charts innovative network course

▶ *Finally profitable, airline bankrolls its first campus project*

By Bob Wallace

"YOU CAN'T BE thinking about a multimillion-dollar network when you don't have money to pay your bills."

That's how Bob Edwards at Continental Airlines explained the situation he faced as his company went bankrupt in 1983 and 1990, finally clawing its way back toward profitability in a fiercely competitive market.

TRYING TO SURVIVE

Crushing financial burdens such as expensive loans and sky-high leases on planes left the company fighting for survival, with little capital to invest in corporate projects such as information systems. As a result, the airline didn't have obvious information technology tools, such as a corporate data network. That forced most employees to use telephones or "sneakernet" to communicate with employees in the same four-building complex. Senior managers posted memos to employees on bulletin boards. The result was very slow movement of potentially competitive data.

But in 1995, after Continental returned to profitability, Edwards, director of advanced technology and industry applications, starting thinking network again. He needed $7 million to build the Houston-based firm a campus network.

Realizing Continental needed to communicate more efficiently to succeed but still lacked the funds for the network, the enterprising Edwards talked 3Com Corp. into providing a "loaner" network until Continental could afford to pay for the network it wanted. The airline already used 3Com equipment.

After Continental explained its predicament, the Santa Clara, Calif.-based network supplier agreed to provide a "transition" network of much-needed internetworking equipment and support to help Continental get the robust network it would buy from 3Com.

"Networking costs would've been 20% to 25% higher without the [loaner] equipment," Edwards said.

Along the way, Edwards used refurbished equipment where there was an immediate need. "We had to save money wherever we could," he said.

After selling the board of directors on the need for a high-tech communications system, funds were approved for the post-loaner network.

> "Communications was the primary challenge. But we also wanted to make sure we had a common infrastructure that would provide access to everything our workers needed

"Communications was the primary challenge," Edwards said. "But we also wanted to make sure we had a common infrastructure that would provide access to everything our workers needed."

Continental began building its network about 17 months ago, linking every desktop in the four-building complex. It should be completed by year's end. Airports and reservation centers are also part of Continental's networking vision of the future.

The company chose to use 3Com shared Token Ring hubs and switching, which will funnel LAN traffic onto a Fiber Distributed Data Interface (FDDI) backbone.

Soon the firm will deploy Token Ring switching to the desktop, which hasn't been done widely because the technology was late in blooming.

"The network will let us flexibly segment users for quick access to servers and mainframes," Edwards said.

TOKEN RING HUBS

The largest building in the network alone uses 41 AT&T Corp. and Compaq Computer Corp. servers. Token Ring hubs are used at five nationwide reservation centers and in 10 airports, which are linked to Houston via a frame relay wide-area network. Users can use the network to communicate with Continental's IBM and Amdahl Corp. mainframes in Charlotte, N.C.

The airline quickly deployed campuswide Microsoft Corp.'s Exchange electronic mail and Microsoft's Schedule Plus workgroup scheduling and task management applications on the network. It also uses the LAN to automatically download booking and scheduling data nightly at 100M bit/sec. from its host computers to its revenue management system.

"What once took several hours now takes 10 minutes," Edwards said. "The chances of errors [occurring] during 10 minutes is far smaller. And we can transfer this data in the middle of the day instead of catching up the next day." □

Tough decisions

Continental Airlines network architect Bob Edwards is credited by one employee as willing to make tough decisions in the middle of wide-sweeping projects.

"We had some Novell LANs but were rolling out Windows 95 at the desktop — and Office 97 — so Bob decided to go with Microsoft's [network operating system] in place of Novell's," said Bob Hagelbarger, a onetime Continental mechanic who is now a systems analyst. "That threw a wrench in the rollout because it required a different skill set, but it definitely helped us to standardize on one vendor."

Edwards is continually looking for ways to save money without compromising quality.

"When we resolve standard changes that need to be implemented in short time periods and require participation from people at multiple levels, workgroups shorten the time needed to comply," Hagelbarger said. "Just having the communications capability was a tremendous leap forward for us."

But the work doesn't stop there for Edwards, who is continually looking at ways to save money without compromising quality. Edwards is looking into network computers as a way to reduce desktop costs and shops for deals that save Continental money on hubs. "We need to bring the cost of desktops computers down," he said.

When asked how he manages to keep saving money on networking gear, Edwards said, "It's negotiate hard and eat some deals." — Bob Wallace

Correction

On page 4 of the Aug. 18 issue, a photo of Maersk, Inc.'s Chris Rebuffoni was misidentified as being Frank Brooks at Blue Cross/Blue Shield. Also, the statements that Brooks' data was "useless" and threatened to crash his data warehouse were incorrect.

Switches to protect Bay users

By Bob Wallace

BAY NETWORKS, INC. users soon will be able to protect their desktop-to-data center LAN cabling scheme using new modules for the vendor's high-end System 5000 data center switch.

In the early 1990s, countless users connected PCs to mainframe applications by wiring them directly to data center switches rather than through intermediary hubs as is common now.

But those direct connections provide only 10M bit/sec. of bandwidth. Moving to higher-bandwidth Ethernet links could require replacing data center switches with switches that can support 10M/100M bit/sec. links.

"Users' choices were simple: rip out all their wiring and recable the facility or throw out the data center switch that can't support the higher speeds," said Tom Nolle, president of CIMI Corp., a consulting and research firm in Voorhees, N.J.

OTHER OPTION

But information systems managers at firms that use Bay's System 5000 data center switch — about 35,000 of which have shipped — can dodge that choice by using System 5000 Autosense Ethernet/Fast Ethernet modules. The modules, which will debut next week, let PCs connect to the 5000 at either 10M or 100M bit/sec. without making changes at either end.

One module has 24 ports that can run at 10M or 100M bit/sec. A second module has 20 ports for twisted-pair connections and two 100M bit/sec. ports for fiber. Bay also will ship an Ethernet/Fast Ethernet Network Management Module that lets users manage 10M bit/sec. Ethernet and 100M bit/sec. Fast Ethernet segments.

One of the Bay modules costs $200 per port. A competing 10M/100M bit/sec. data center switch module from Cisco Systems, Inc. costs $800 per port. □

& Bay joins others in giving users network access to mainframe data. Page 51

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Internet can magnify mistakes

▶ *Exposure to the public may be embarrassing*

By Sharon Machlis

THERE IS A special danger lurking in cyberspace for IS managers.

While computer snafus have been hidden inside companies for years, putting applications up on the World Wide Web makes them intensely public. A major credit-reporting agency discovered that recently when 200 credit reports were electronically sent to the wrong customers.

"The sense of urgency to get on the World Wide Web is very high," said William H. Murray, an information systems security consultant to Deloitte & Touche in Wilton, Conn. "But this is an area where it's incredibly easy to make grotesque errors."

MAD RUSH

Officials at Experian, Inc. in Allen, Texas, said the company's Web site worked fine in its first few days, when the service was unpublicized and volume was light.

But after news reports about the site appeared, an unexpected flood of more than 2,000 requests over 11 hours triggered a software glitch that misdirected the credit data, said Martin Abrams, vice president of information policy. The site has been shut down until the bugs can be fixed.

"It's hard in the current Internet environment to understand what the demands are going to be," Abrams said.

While Experian issues millions of credit reports annually to businesses and individuals, the company believed Internet requests initially would be small because it hadn't even promoted the service on its own home page, let alone outside the firm.

"They didn't plan for success," Murray said.

Experian, which was formed by the merger of CCN Group and TRW Information Systems & Services last year, launched its Web service after receiving more than 20,000 electronic-mail requests for online access to credit reports, Abrams said.

A great deal of security was put on the site, he said, including the ability to encrypt data as it crossed the Internet and a firewall to protect the core database.

Customers needed two credit-card account numbers and a Social Security number to access their data; and the resulting reports didn't contain complete account numbers so as to make it difficult for data to be used to commit fraud.

Many privacy advocates are concerned about posting financial data on the Internet, even if misdirection errors are fixed. Experian likely will offer consumers a way to ask that their credit reports be kept off the Web, Abrams said.

Experts disagree about whether current technology lets consumers safely access sensitive financial data on the Web.

Many say the information, if encrypted, is generally protected from eavesdroppers as it crosses the Internet.

But proving that consumers are who they claim to be when requesting personalized reports is more dicey.

"User authentication is still a huge obstacle," said Peter Neumann, principal scientist at SRI International, Inc. in Menlo Park, Calif., and moderator of the Internet Risks Forum newsgroup.

PRIVACY ISSUES

A Social Security Administration Web service that let taxpayers check earnings histories and estimated future benefits sparked a furor over concerns about improper access to private financial information.

User names and passwords given to customers off-line may be enough security for online banking and stock trading, where transactions are limited.

But delays in setting up off-line passwords make them impractical for onetime information requests where the whole point is to offer instant access to data.

"Until public certificate systems are widely used, the Web is not suitable for those kinds of applications," said Philip Carden, a managing consultant at The Registry, Inc. in Hoboken, N.J.□

Enterprise management stays elusive

By Patrick Dryden
WASHINGTON

TAKE CHARGE of vital business processes to lower costs, serve users and keep the company competitive. That was the message delivered repeatedly to attendees at last week's Enterprise Management Summit conference here.

But that's easier said than done, according to many IS managers who attended the conference.

"The ends are clear, but not the means," said John McConnell, head of McConnell Consulting, Inc. in Boulder, Colo.

Vendors, just like the groups within an information systems organization, still focus on managing just one piece of an enterprise instead of working together to deliver an application and ensure its performance, McConnell said.

Juggling management expertise with shrinking staff is a challenge

Enterprise management remains largely uncertain, almost like building the Transcontinental Railway, McConnell said.

"You hope it works, but right now it doesn't appear these tracks will meet," he said.

Anyone tackling integrated management must overcome "big problems in all three areas — technology, processes and people — or else your project is doomed," said Aaron Cheng, operations manager at Ontario Hydro in Toronto.

MULTIPLE PROBLEMS

Struggles for Cheng have so far included extending mainframe disciplines to the distributed environment; writing custom software to integrate key tools and automate tasks; merging six support groups into one center; and arbitrating staff reductions with unions for 17 months.

Those struggles, begun in February 1994, aren't over, but they are paying off.

Cheng said the utility slashed help desk response time from eight hours to one hour and cut problem resolution from 16 hours to eight. Operating costs plunged about $1 million per year. IS can handle 350% more management tasks with only 30% more cost.

At First USA Bank in Wilmington, Del., the sessions on setting service levels and managing applications got old quickly for Steve Pirollo, a systems administrator at the company.

"We know that's important, but we're still faced with problems making it happen," he said.

Pirollo took the "common sense approach" by setting his TME to enterprise management console to warn which user service is in trouble instead of merely displaying which server is down, for example.

But Pirollo said he can't find experts to help with the complex new software from Tivoli Systems, Inc. And he must overcome familiar roadblocks, such as getting others to buy in to IS management goals.

Juggling expertise also is a challenge at Duke Energy Co. in Charlotte, N.C., said senior network analyst Paul Edmunds.

"We're trying to combine all the management pieces to support business objectives, but it's tough to pull together disparate groups and to take on this project with a shrinking staff," Edmunds said.

Besides having to deal with such recurring operational problems, IS must try to find and apply tools that can cover all levels of complex client/server environments, said Eric Roy, a network analyst at Quebec Telephone in Rimouski, Quebec.

"No product yet can give us a view of application performance all the way from end to end," Roy said.□

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FRANKLY SPEAKING

Tip of the day: Be paranoid

FRANK HAYES

FIRST RULE OF SECURITY: Don't trust. That is, don't trust walls; don't trust locks; don't trust people.

The credit-information company that used to be called TRW knows that rule very well. Good thing, too. Because when the company — which now calls itself Experian — decided to let consumers see their credit reports on the Internet, a healthy dollop of paranoia is all that kept a security failure from becoming a catastrophe.

SWAMPED SITE

Experian quietly launched the service on Wednesday, Aug. 13. By Friday morning, the *Washington Post* discovered it and ran a story. Within hours the site (*www.experian.com*) was overwhelmed with nearly 2,000 requests — far more than the company expected or the Web-based credit-report application was designed to handle (see story page 6).

Worse still, that unscheduled stress test turned up a bug: When the system failed, it showed each consumer's credit report to a different consumer.

The credit report of a man in San Jose, Calif., went to a wine consultant in Napa. The wine consultant's credit history went to a grocery store manager in Plymouth, Mass. His financial dope went to a reporter in New York City, whose credit information ended up in the hands of a management consultant in Columbia, Md.

Security rule No. 2: If you've got a security breach, try not to make a reporter one of the victims.

Second rule of security: If you've got a security breach, try not to make a reporter one of the victims. By Friday afternoon Experian had pulled the plug, but the story of its security failure was already on its way to newspapers across the country.

The irony is that none of Experian's security systems failed.

And Experian had piled on the security. There were firewalls to keep out hackers and crackers. Encryption to protect the credit information on its way across the Internet. Extra verification to prevent "identity thieves" from ordering someone else's credit report.

It all worked, too. So far as Experian can tell, every one of the more than 200 credit reports that were sent electronically was properly authorized and securely transmitted.

They just went to the wrong people.

So how *did* the foul-up happen? The company is still doing its postmortem, which includes contacting all those customers to find out who got which credit report.

But it looks like with the big surge in requests — much bigger than Experian had tested for — the reports queued up for delivery in the wrong order.

It was a weird interaction between subsystems, the kind of subtle bug that has to be shaken out of lots of new systems.

Except that, in the past, it was Experian employees — the system's users — who would have first spotted the mismatched information. With the Web-based application, the bug-spotting users were wine consultants and grocery store managers and newspaper reporters — Experian's Internet customers.

That's embarrassing. But it probably would have been much, much worse except for one thing: Even with all that security in place, Experian *still* didn't trust the system.

The company monitored the site, not just for performance but just to make sure nothing unusual happened.

After all, even with heavy testing and heavier security, a little paranoia never hurt anybody.

And when request volumes skyrocketed on Friday morning, Experian spotted the misdirected reports and shut down the service after only 213 reports were delivered. Not 20,000. Not even 2,000.

And what might have been a confidentiality catastrophe was contained to a small-scale screw-up for Experian — and an object lesson for every IS shop that wants to put applications on the Internet: No matter how good your technology is, don't trust it. Because on the Web — just like everywhere else — only the (slightly) paranoid survive. □

Hayes is Computerworld's staff columnist. His Internet address is frank_hayes@cuc.com.

SHORTS

BT/MCI deal still on

MCI Communications Corp. and British Telecommunications PLC on Friday said they will go ahead with the merger to create Concert PLC, but BT is paying 20% less than the companies announced late last year. The reduction brings BT's purchase price to between $16 billion and $17 billion — down from nearly $21 billion, BT officials said. The adjustment came after MCI announced it would lose $800 million this year as a result of its foray into local U.S. telephone markets.

Cray wins dumping claim

The U.S. Department of Commerce wants Japanese supercomputer makers Fujitsu Ltd. and NEC Corp. to pay huge tariffs on future supercomputer sales because they dumped low-priced systems in the U.S. and harmed competitor Cray Research, Inc. Cray was bought by Silicon Graphics, Inc. in Mountain View, Calif. The tariffs could range from 1.5 to 4.5 times the list price of their supercomputers. The International Trade Commission will make a final decision on the tariffs in October.

McAfee denies Symantec claim

McAfee Associates, Inc. disputed a claim by antivirus rival Symantec Corp. that McAfee had stolen code for its VirusScan software. McAfee said that allegedly copied code found by a Symantec contractor was actually fewer than 100 lines and was part of a version of VirusScan that never shipped. Symantec responded that McAfee has acknowledged copying code. McAfee said a former Symantec employee "inadvertently" brought Symantec code to McAfee, but it was erased and wasn't used. Symantec called that potential destruction of evidence.

Tokyo 'net provider spoofed

Tokyo-based Internet service provider Typhoon, Inc. has filed a lawsuit in Los Angeles against an Internet spammer for falsely using its address in Internet electronic-mail advertisements. Typhoon is claiming that Pasadena, Calif.-based Paging America, which markets pagers and paging services, trespassed and misappropriated Typhoon property by using the provider's address as the place of origin on its E-mail advertisements. Paging America didn't return calls for comment. [CW, Aug. 18]

Sun buys smart-card developer

Sun Microsystems, Inc. said it will acquire Integrity Arts, Inc., a start-up in San Mateo, Calif., that specializes in smart-card technology using Java. The deal is expected to bolster Sun's work on a Java Card 2.0 application programming interface, which is due in September. The terms of the deal weren't disclosed. Sun also announced Java Blend, a product designed to help corporate developers integrate data between Java applications and databases without writing a single line of code in a database language. Java Blend will ship early next year, officials said.

Novell runs into red ink

Novell, Inc. last week reported a third-quarter loss of $121.7 million, compared with earnings of $58.8 million for the same period last year. The loss includes a $55 million restructuring charge. Revenue plummeted from $365.1 million to $90.1 million. CEO Eric Schmidt said the revenue drop was a onetime phenomenon caused by Novell's decision to reduce its backlog of products sitting in the distribution channel.

Booming high-tech cities

More high-tech companies are setting down roots outside of Silicon Valley. Cities enjoying high-tech booms include Tampa, Fla.; Boise, Idaho; Nashville; Ann Arbor, Mich.; Dayton, Ohio; and Nashua, N.H., according to a study by WEFA, Inc. Higher salaries accompany the high-tech jobs. Last year, the average high-tech job paid $53,000, compared with $29,000 in the private sector. High-tech companies also tend to spread the wealth to other businesses in their neighborhoods, according to the Eddystone, Pa., consulting firm.

SHORT TAKES Earnings at **Dell Computer Corp.** in Round Rock, Texas, more than doubled to $214 million, up from $103 million in the same quarter last year. Revenue jumped 66%, from $1.69 billion in the same quarter last year to $2.81 billion. ... **Barnes and Noble, Inc.** in New York has cut a joint marketing and content-sharing deal with Lycos, Inc. in Framingham, Mass., for BarnesandNoble.com to be the exclusive bookseller on Lycos search engines. ... The **American Civil Liberties Union** (ACLU) came out strongly against a voluntary Internet self-rating system after federal officials called for more self-policing by online content providers. The ACLU released a white paper at *www.aclu.org/issues/cyber/burning.html*. ... **Microsoft Corp.** pulled a service patch for Microsoft Word 97 from its World Wide Web site after company officials discovered a "rare" bug that could have prevented users from saving edited files. A fix will be available in a few days.

FTC grapples with copycat site issue

By Sharon Machlis

A "COPYCAT WEB SITE" may violate U.S. law by deliberately misleading consumers to think they are doing business with someone else, according to an advisory opinion issued last week by the Federal Trade Commission.

The FTC criticized an Australian company, Internic Software, for registering Internet domain names at its *www.internic.com* site. InterNIC, a separate enterprise run by a company called Network Solutions, Inc. has authority from the National Science Foundation to register domain names as well as to keep track of them and resolve conflicts. It uses *www.internic.net*.

Some companies are increasingly concerned that imposters, competitors or malicious hackers could set up sites with URLs similar to those of legitimate businesses.

Using a "virtually identical" domain name and providing "nearly identical domain registration services ... is likely to create a false impression that the site is owned and operated [by] Network Solutions," the FTC concluded.

Other businesses can serve as brokers to take domain registration requests, but the Australian company was charging $250 vs. the $100 InterNIC registration fee. Herndon, Va.-based Network Solutions accused the internic.com site of not paying for the registration requests of more than half the 2,000 orders it has received.

"In our view, Internic Software is ... offering the same service at more than twice the price," said David M. Graves, Network Solutions' Internet business manager, in a letter to the FTC. "Network Solutions has received numerous complaints from users of the Internet and registrants of domain names [about www.internic.com]."

This is the second time the FTC has dealt with the thorny issue of similar and potentially misleading uniform resource locators (URL). The FTC previously criticized a pornographic site at *www.nasa.com*, concerned that children seeking photos from the popular NASA Mars mission might try the .com site instead of NASA's actual URL at *www.nasa.gov*. The nasa.com site was shut down after complaints.

"What will be interesting to see is what kind of jurisdiction they will be able to come up with" in the InterNIC dispute, said Marcelo Halpern, an associate at the Gordon & Glickson law firm in Chicago. The NASA case was more straightforward because a law protecting the use of the NASA name had been violated.

The FTC said it has notified the Australian Competition and Consumer Commission about the internic.com site, and it is investigating.

Some companies are increasingly concerned that impostors, competitors or malicious hackers could set up sites with URLs similar to those of legitimate businesses.

This would be an easy way to siphon off unsuspecting customers, offend them or misdirect orders. Worry mounted with plans to increase available URLs by adding registries such as .firm and .store to the existing top-level domain names.

The internic.com site includes disclaimers that it isn't affiliated with InterNIC and Network Solutions, but the FTC said those weren't sufficient. □

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Visa, MasterCard say year 2000 problem is fixed

By Thomas Hoffman and Wylie Wong

THE COUNTRY'S TWO leading credit-card issuers say they have squashed the year 2000 bug and have given the go-ahead to roll out cards with year 2000 expiration dates by Oct. 1.

But some analysts have expressed skepticism, noting the vast array of hardware and software that must be brought in line by multiple parties before true compliance can be achieved.

For more than a year, the two companies have issued a combined 200,000 post-1999 credit cards to employees to test and ensure that credit-card readers are year 2000-compliant.

Test results show that at least 98% of the merchants that use credit cards are compliant; 99.9% compliance is expected by year's end.

One analyst is skeptical of claims from Visa International, Inc. in San Mateo, Calif., and MasterCard International, Inc. in Purchase, N.Y., that most — if not all — point-of-sale (POS) systems will be year 2000-ready by the end of the year.

That's a heady goal, because 3.6 million merchants in the U.S. work with Visa and/or MasterCard, said George Kivel, an analyst at The Tower Group, a financial services and technology consultancy in Newton, Mass.

Most shops lease their POS equipment from member banks that will be responsible for resolving hardware and software programming issues with third-party vendors, Kivel said.

"Visa might be claiming that they've certified all their [member] banks and devices, but I don't believe that's possible," he said. "There are too many devices out there for that to be done" in time.

THREE-YEAR PROJECT

MasterCard and Visa said they have worked with member banks and third-party vendors since 1994 on the issue and have spent three years replacing POS systems and upgrading software.

In fact, Visa earlier this year imposed deadlines and threatened fines if member banks and merchants didn't solve their year 2000 problems by April 30.

"I can't say there won't be isolated incidences, but overall we don't think consumers will be inconvenienced," said Visa spokesman Greg Jones. Both card companies will advise banks to roll out the post-1999 cards slowly and continue testing to ensure that no problems arise.

Member banks such as New York-based The Chase Manhattan Bank Corp. worked with Visa and MasterCard to hammer out POS and automated teller machine acceptance for post-1999 dated cards. But there's still "a myriad" of credit-card-related applications and processes that Chase has to smooth out in order to support its 17,000 customer accounts, said Joseph LaRocco, senior vice president of Chase Cardmember Services in Hicksville, N.Y.

Chase will issue credit cards with expiration dates beyond 1999 beginning in October.

For example, Chase, the nation's biggest bank, outsources credit-card authorization services and other transaction processes to First Data Resources in Omaha. LaRocco said Chase and First Data expect to make their interdependent systems year 2000-ready by the end of 1998. That will leave 1999 open for testing.

"This is above and beyond what Visa and MasterCard are doing" for credit-card acceptance, LaRocco said.

American Express Co. in New York is still working with merchants on the issue and hasn't issued cards with expiration dates beyond 1999, a spokeswoman said. She wouldn't say when American Express and its partners will reach full compliance.

Morgan Stanley Dean Witter Corp.'s Discover Card is working on compliance and will start issuing year 2000 cards by year's end, said a Discover spokeswoman who declined to give further details. □

1 BLURRED ELEPHANT
2 ELEPHANT HURLING A CRUISE MISSILE.
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AS/400 tuned for E-commerce

▸ RISC-based server offers better scalability and availability

By Tim Ouellette

IBM'S FORAY into electronic commerce on the AS/400 may be flashy, but it is the under-the-hood perks that are grabbing users' attention.

Last week, IBM rolled out its long-awaited 600 series, called the AS/400E. The "E" stands for electronic commerce, to highlight the AS/400's capabilities in that area to new users.

Running on the new RISC-based Apache PowerPC chip, the AS/400E will scale up to 12 processors [CW, Jan. 20], provide new high-availability features for critical applications [CW, June 16], bundle OS/400 Version 4, Release 1 and preload major application suites in some custom systems.

ELECTRONIC COMMERCE

"IBM is moving in the right direction," said Eli Sinyak, director of branch operations at American General Finance Corp., an AS/400 shop in Evansville, Ind. "We are in the planning stages to move from our old CISC machines to the new RISC technology."

More important for many existing users, though, is IBM's plan to optimize certain AS/400E systems to run preloaded application suites from J. D. Edwards & Co. in Denver, Systems Software Associates, Inc. in Chicago and SAP AG. In fact, that alone may keep some existing users from actually moving off the platform.

"If they had not done this, we might have moved" to either a Unix or Windows NT client/server platform, said Al Sussman, vice president of information technology at Rollerblade, Inc. in Minnetonka, Minn.

The in-line skate maker runs a suite of J. D. Edwards applications on the AS/400 but wanted to move from the old host-based approach to J. D. Edwards' updated, client/server method.

"To hear that they are helping us to coexist with older programs, that makes sense," Sussman said. "We are more wedded to J. D. Edwards software than the AS/400, but I would have been disappointed to move away from it."

A new integrated firewall and Internet user access control will bolster existing World Wide Web server capabilities on the AS/400.

FUTURE ENDEAVORS

But most of the electronic-commerce technology will come early next year, when IBM plans to deliver a Java Virtual Machine native to OS/400 and a native version of Lotus Development Corp.'s Domino Internet groupware system.

So it remains to be seen whether many users running Unix and Windows NT servers will decide to switch to the AS/400. "It is not sexy, exciting technology," Sussman said. "But what they do works really well." □

& IBM to show off SAP R/3 preinstalled on AS/400. Page 55

SELECTED AS/400E SERIES PRICES

Model	Pricing*
Uniprocessor 600-2129	$13,000
2-way 620-2182	$480,000
4-way 640-2239	$750,000
8-way 650-2240	$1.1M
12-way 650-2243	$1.25M
4-way custom application server SB1-2310	$235,000

*Includes OS/400 Version 4, Release 1

Platinum to bundle tools into management suite

By Patrick Dryden

PLATINUM Technology, Inc. previewed its entry in the integrated enterprise management wars at its user conference last week in New Orleans.

Platinum plans to bundle nine newly integrated tools into a suite called ProVision, focused on multiplatform database and systems management.

The core package, due in October, will be aggressively priced and will double in size by year's end, said officials at Platinum in Oakbrook Terrace, Ill.

"This built-in integration of strong point products is a good way to move up to compete with the enterprise management framework leaders," said Herb VanHook, an analyst at Meta Group, Inc. in Cambridge, Mass.

ONE STEP AT A TIME

ProVision offers the benefits of tool integration incrementally, VanHook said, so users don't need underlying software such as Unicenter TNG from Computer Associates International, Inc., OpenView from Hewlett-Packard Co. or TME 10 from Tivoli Systems, Inc.

A CA spokesman discounted the Platinum effort. "They are too late to the enterprise management game to make any difference," said Reuven Battat, senior vice president at CA in Islandia, N.Y.

Platinum's promised integration capability — free with upgrades for individual tools — mostly benefits those who already run some of the company's 140 products, users and analysts said.

The enhanced tools can exchange events and alerts through built-in messaging and a common user interface.

That means managers can easily chain together tasks performed by specific tools.

"Most shops rely on selected point tools even though it makes more sense to tie them together. However, I prefer to have integration built in than to deal with unknowns like a framework and other vendor pieces," said Platinum user John Randle, operations support manager at Yellow Services, Inc. in Overland Park, Kan.

Randle's group currently runs two Platinum tools to schedule jobs and exchange files among mainframe and distributed systems.

Database administrators run other Platinum tools to maintain the trucking firm's business transactions.

Integration means that, for the first time, "my operators could see a database problem during the night shift and the [database administrators] can have access to our scheduling," Randle said. □

Internet mail savings

CONTINUED FROM COVER 1

Texas Instruments, Inc. in Plano, Texas, has slashed its maintenance costs by moving 27,000 users to Internet mail over 14 months, said Evan Miller, project manager at TI. But the company had to bulk up on programmers to write management utilities, which weren't included with the Internet mail software it purchased.

In spite of the additional programming staff, Miller estimated that TI is spending between one-ninth and one-fourth of what it would cost to run a proprietary mail network. "Messaging costs for a company our size could easily run $10 million a year, and we're not spending anywhere near that," he said.

TI uses Internet mail clients from Banyan Systems, Inc., Netscape Communications Corp. and Qualcomm, Inc. It uses servers from Sun Microsystems, Inc. and Software.com, Inc.

Meanwhile, traditional electronic mail such as Lotus Development Corp.'s Notes, Microsoft Corp.'s Exchange and Novell, Inc.'s GroupWise are quickly gaining IP hooks.

But Miller said those offerings still have some proprietary baggage not found in products that were built to run on IP.

Wright Medical Technology, Inc., an Arlington, Tenn.-based manufacturer of artificial joints, is moving about 400 users from Lotus' CC:Mail to Sun's Internet Mail Server.

According to Robert Massey, engineering systems administrator, Wright will be able to move from two CC:Mail servers to one Sun server. And the Internet mail system will give users closer ties to the company's 75 employees who use Unix-based Internet mail. Plus, workers will be able to easily download their mail remotely.

Palo Alto, Calif.-based Creative Networks, Inc. estimated that companies can save between $367 and $406 per user in the first year by using a messaging system based on TCP/IP.

But Brad Harding, an analyst at Ferris Research, Inc. in San Francisco, said the Internet mail picture may be somewhat deceiving. "There are big holes in functionality with Internet mail," he said.

For example, most Internet mail servers lack built-in monitoring tools that detect lost messages or heavy traffic spikes, he said. As a result, companies must either live with fewer features or invest in customizing the system to better meet their needs.

TI had to shore up its messaging system with management tools and software to link the new system to the company's legacy mainframe system. There was also a lot of unforeseen integration work that needed to be done, Miller said.

Mail systems based on the Internet's Simple Mail Transport Protocol (SMTP) also are seen as less secure than systems that run on proprietary networks (see related story, page cover 1). For that reason, some sites have maintained an X.400 link to business partners and moved daily mail traffic to SMTP. Down the road, the widespread adoption of encryption technology such as Secure Multipurpose Internet Extensions should make Internet mail more bulletproof, users said. □

Costs: Internet mail vs. client/server mail

Cost element (per user)	Internet messaging	Client/server messaging
Annual administration	$38.46	$67.57
End-user training	$100	$400
Annual directory maintenance	$9.00	$9.50
Fixed server costs	$11.90	$52.08

Source: Creative Networks, Inc., Palo Alto, Calif.

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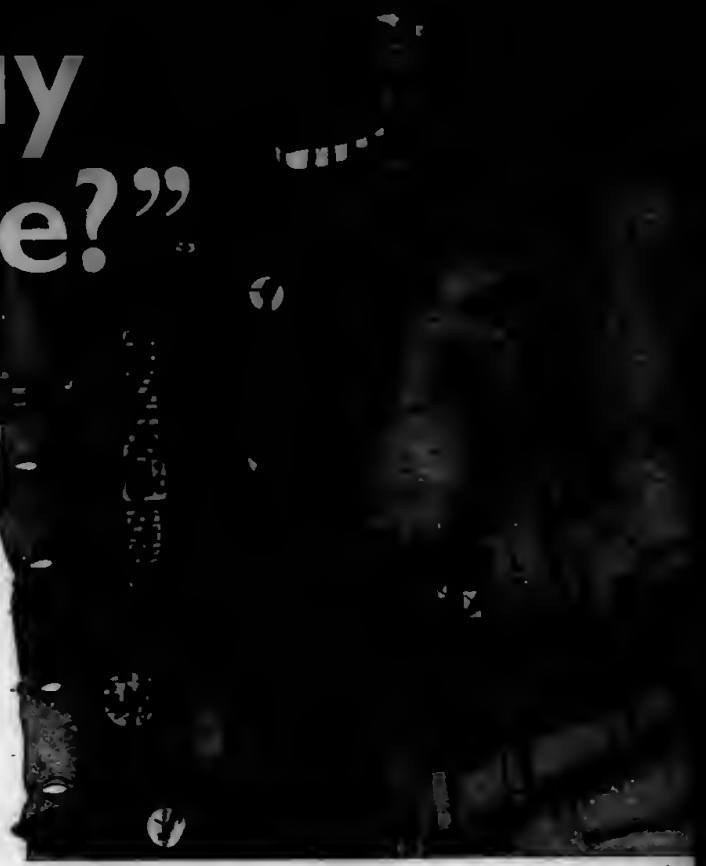

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Corel cans Java Office project

▸ *Pitches an 'evolved' product, promises a Java-based upgrade*

By Gordon Mah Ung

ALL BUT admitting its strategy to produce a Java-based Office suite has failed, Corel Corp. last week said it has shifted efforts to developing products centered on groupware, electronic mail and multiuser system software.

"Really what it is, is an evolution," said Paul Skillen, vice president of software development at Corel, who downplayed the news. "We're very committed to Java and using that to go forward as part of our strategy."

APPLICATION SUITES

Skillen said the evolved product would be a Java-based upgrade to CorelCentral, Corel's desktop organization and communication package.

At its core, CorelCentral will have a universal in-basket, workflow, personal information management, push technology and a browser-like interface.

Much of the technology developed for the Java-based Office will be used in it, Skillen said. The Java-based upgrade to CorelCentral is planned for release next summer.

Corel is banking on three main products to break into the enterprise: WordPerfect Suite, CorelCentral and a product code-named Remagen that will let multiple users access copies of WordPerfect or Microsoft Corp.'s Office from a server through a Java-enabled browser.

Microsoft is using a similar strategy by licensing WinFrame from Citrix Systems, Inc. to let multiple users access copies of applications running on Windows NT Server (CW, May 19).

FIRST OUT OF THE GATE

Corel was one of the first vendors outside of Sun Microsystems, Inc. to embrace Java. The company released a beta version of the Office suite in April. That gave hope to Java proponents, but the suite was panned for being too slow and rife with bugs.

Ultimately, analysts said, Corel's gumption to run with Java before the market matured has left the company standing alone in an empty field. Microsoft has been rumored to be developing a version of Office written in Java but has never confirmed the reports.

Jeffrey Tarter, an analyst and editor of the computer trends newsletter "Softletter" in Watertown, Mass., said Corel simply missed the mark. "I think this was a case of shoot first and then aim," he said. "It's not clear why anyone would want a Java version of Office."

Some users agreed that they simply weren't asking for a Java-based Office.

"We're big WordPerfect users," said one assistant MIS manager at a West Coast law firm with more than 3,500 WordPerfect Suite seats. "We love the product." But she said her company never understood where Corel was trying to go with its Java version.

Analysts said Corel's shortcomings on a Java Office shouldn't reflect badly on Java.

With its latest move to go head-to-head with Microsoft and Citrix, Corel is stepping into rough waters, said Greg Blatnik, an analyst at Zona Research, Inc. in Redwood City, Calif.

"Corel has a tough challenge. They're up against Microsoft, they're looking for new territory," Blatnik said. "And jumping up to an area that Citrix pretty much owns is maybe not going to give them an easy road either. Maybe they need to scratch their heads a little more about where the opportunities exist." □

Staff writer Patrick Thibodeau contributed to this story.

• Sapphire user conference

SAP tries to beef up R/3 manageability

By Randy Weston

SAP AG AND its partners will be working overtime at this year's Sapphire user group conference to shed R/3's reputation as an out-of-control monster that's difficult to manage.

The German software giant and a slew of third-party vendors and consulting firms will promote new functionality for R/3 that is intended to expand the enterprise planning package's reach.

SAP also will promote enhancements to Business Engineer, a tool used to configure R/3 to a company's needs. The enhancements are intended to ease installations.

"SAP wants to get embedded in the DNA of the enterprise," said Bruce Richardson, an analyst at Advanced Manufacturing Research, Inc. in Boston. "They want to increase the number of R/3 users, increase the number of applications and get into more industries. SAP wants to be at all ends of the supply web."

THIRD-PARTY EFFORTS

SAP won't be alone in its efforts as 10,000 of its customers descend on Orlando, Fla., this week. Third-party vendors and implementation firms, including the major consulting firms, will be on hand to promote their R/3-optimized products and installation practices.

Richardson and other analysts agree R/3 is getting easier to install, mainly because of new tools from SAP and third parties. Also, many consultants have several years of experience with the product, which speeds up the learning curve.

But the analysts also warned that R/3 is still a giant and getting bigger all the time.

"It's still nothing that you take out of a box and go right to work," Richardson said. "It never will be at that point. It's gone from a migraine to a headache. Just because it is easier to install doesn't mean users have to be any less smart about how to go about putting it in or using it."

R/3 STILL NOT EASY

Robert Rubin, vice president of information systems at Elf Autochem North America, Inc. in Philadelphia, agreed that R/3 is easier to manage but said it still requires lots of work. The $2 billion chemical company is wrapping up its R/3 installation and focusing on building links to other company software systems, such as health, environment and safety.

"It's easier today than it was two years ago to link to R/3, but it is not easy by any stretch of the imagination," Rubin said.

"Today, we are trying to decide the best way of doing it. We have a pilot facility that we are using to investigate the logical progression to share information between systems," he said. □

SAP'S RAP

Announcements set for Sapphire this week include:

- Demonstrations and further details of Internet commerce systems
- Details about new supply-chain management functions to come with R/3 4.0
- Details about an integrated data warehouse for R/3
- SAP's product configurator built into R/3
- Integration of Business Engineer R/3 configuration system with software from IntelliCorp
- Details from IBM on network computers that run R/3, and the delivery of R/3 preinstalled on AS/400 machines
- Separate announcements from IBM's consulting arm and KPMG Peat Marwick on new programs to preconfigure R/3 for specific industries

Win 98 interface may trip users, beta testers say

By April Jacobs

MANY WINDOWS 98 beta testers said they are pleased with improvements in boot time and remote management features, but some said average users may have difficulty finding their way around the operating system's browser-like interface.

Key changes to Windows 98, which is due in the first quarter of next year from Microsoft Corp., include better remote and configuration management that lets network administrators service a user's machine without going out to the desktop.

It will also feature tight integration with Microsoft's browser, Internet Explorer, letting users toggle between the Internet and desktop functions without changing interfaces.

NEEDS SOME WORK

Beta tester Dave Adams Saltz, a consultant at Genesis Partners, Inc., a computer consultancy in Waltham, Mass., said those changes will make users more productive and cut support costs for businesses. But he said Microsoft still must make the user interface more intuitive.

According to Saltz, Windows 98 is far better than Windows 95 with respect to support issues because it won't force systems administrators to make changes and fixes at a user's desktop — which can be a serious issue as the number of users in a company grows.

"The common driver model, which allows developers to write a single driver for Windows 98 and Windows NT, is a huge benefit in terms of saving time and reducing support costs because there will be fewer compatibility issues," he said.

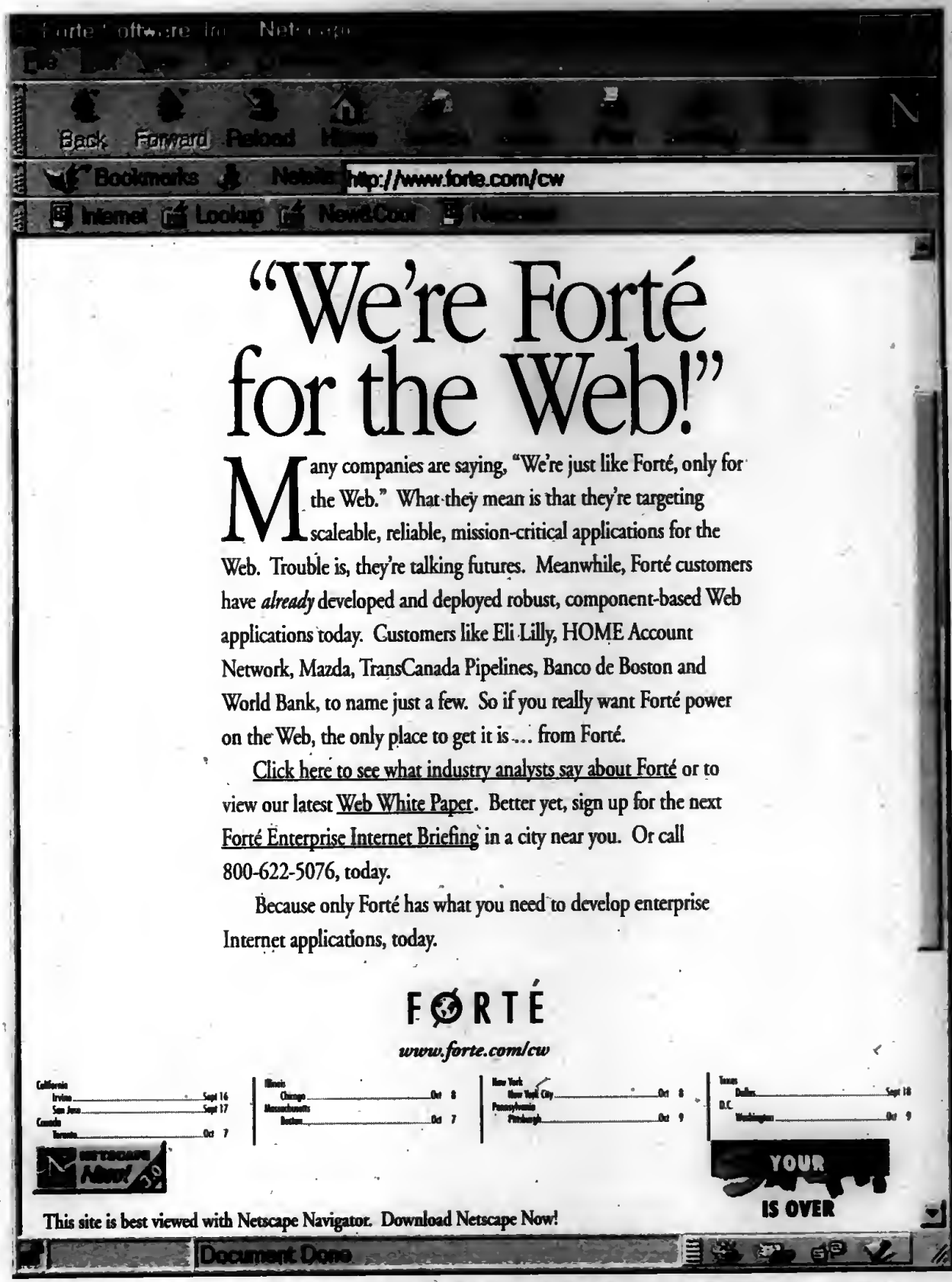
"Users can also open up multiple applications and have the system stay stable," Saltz said.

Microsoft spokeswoman Stacey Breyfogle and analysts interviewed for this story said users with older hardware and legacy 16-bit software can make an easier transition from Windows 3.1 to Windows 98 than if they go directly to Windows NT 4.0 Workstation. This is because Windows NT Workstation requires more memory and processing power.

And while some beta testers found the new browser-like interface a little difficult to handle — they were worried it may require more training time than Windows 95 did — others found it easy to use.

Frank Isaacs, a software developer at ExaSystems, Inc. in Raleigh, N.C., said he doesn't think training will be an issue.

"End users don't want to have to think about going to several different places to find information. With Windows 98, they don't have to," he said. He noted that messaging and Internet newsgroups, as well as files, can be accessed from a single interface. □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Daiwa finds plenty to recommend Java

CONTINUED FROM COVER 1

Java performance may not be the greatest right now, but Daiwa is willing to be patient because the company thinks its developers will be able to write applications faster with the increasingly popular object-oriented programming language.

"It's much cheaper for me to spend $2,500 on a hot-shot PC that'll run Java applications quicker than spend $50,000 to $100,000 for an extra programmer to write code," said Jeffry Borror, director of IT at Daiwa Securities America.

But that may not be the case for companies in other industries, one analyst warned. "The beauty about trading systems and financial systems that's unique is the payback comes very quickly," said Mike Kennedy, an analyst at Meta Group, Inc. in Burlingame, Calif.

"These are applications that have very high dollar volume associated with each transaction, and the need to be able to change your business processes quickly is of paramount importance. But not every business is willing to pay the same costs for their business applications," Kennedy said.

THE JAVA ROUTE

Daiwa is nearing rollout of two Java applications: a trade processing system that routes business transactions to different processing locations in "air traffic controller" fashion, and a trading system for the company's Japanese equities desk.

Java's cross-platform nature is important because pieces of the application run on different machines and operating systems, Borror said.

For example, with the "air traffic controller" application, trades are entered on customers' PCs that typically run Windows 95. That information must be routed across the network to a Unix database server for trade validation and processing. For record-keeping purposes, the transaction must be forwarded to the company's back-office mainframe operation in Waltham, Mass.

With the Japanese equities application, the company is eliminating several manual steps of data entry and reentry on a variety of machines.

"As these manual steps are automated with the Java application, the speed and accuracy of the trade-entry process increase, freeing the traders to trade," Borror said.

He said he realizes Java isn't perfect. With the early version, he had to endure a lack of features and development tools. Performance still lags behind C++, although improvements to just-in-time compilers and virtual machines are helping.

"To be frank, I'm not sure it'll ever run as fast as C++," Borror said. "But I'll pay a reasonable performance penalty — 20% to 25%, or even 50% — to get the cross-platform capabilities and the cleanliness of the object model."

Since the 1980s, Wall Street has loved the Unix operating system and the C++ programming language because of the application power they provide, Borror said

Daiwa grew dissatisfied with C++ because it is difficult to write well and complicated to maintain.
— Jeffry Borror, Daiwa Securities

But he said he was growing dissatisfied with C++ because it is difficult to write well and even more complicated to maintain. Java retains the best features of C++, such as the C syntax and basic object model, and eliminates the worst features, such as pointers and manual memory management, Borror said.

"If you do object-oriented development correctly, you have a much better chance of achieving the reuse of code we've been looking for in 20 years of programming," Borror said. "In particular, what I like is the JavaBeans model, which makes it very easy to develop and reuse software components."

Borror compared it to being able to buy the light switches, sinks and door for a house instead of building them from scratch. "I want Home Depot," he said. That is important for a securities firm such as Daiwa, where time often means money.

"The pressure is particularly intense here because we're under great deadlines," he said. "Our markets move very quickly. If we can't deliver things and put things out very quickly, the business opportunity is gone."

"Traders are dealing with hundreds of millions of dollars regularly. So if you can do something faster or more accurately than the competition,. there's millions of dollars that can be made," he said. □

Computerized stock option trades boost Amex. Page 39.

As rivals fill out lines, Toshiba share drops

By Kim Girard and Wylie Wong

RANKINGS IN THE portable PC market are shifting as users take advantage of perked-up product lines and cranked-up competition.

Although Toshiba Corp. still ranks as the top notebook vendor, rivals IBM and Compaq Computer Corp. are quickly closing in, according to preliminary market estimates by International Data Corp. (IDC) in Framingham, Mass.

Analysts say the race among the top three portable PC vendors will tighten during the last half of this year.

Toshiba's numbers fell this quarter, to 17.8% of the market, because the company pumped too many computers into the channel during the first quarter that they couldn't sell, said Ken Dulaney, an analyst at Gartner Group, Inc. in San Jose, Calif.

"Any time someone's successful, they tend to become too arrogant, push on the accelerator, let off and it blows up in their face," Dulaney said.

Toshiba has lost 5.9% of the market over the past year. But the company isn't expected to move from its top spot any time soon. During that time, IBM's market share has grown from 12.9% to 14%. Compaq is third with 11.2%, up 3.9% from last year's second quarter.

"A year ago, a lot of the bigger players like IBM and Compaq didn't really have full, competitive available product lines," said analyst Bruce Stephen, at IDC. They do now, especially in the midrange market, he said.

TIGHT RACE

Stephen said he expects the race among the top three to tighten during the last half of this year. Dell Computer Corp., in fifth place, has come on strong because of lower prices, Stephen said. Dell's market share has risen to 5.4%, up 1.3% from last year's second quarter.

Users are getting more comfortable with buying direct from Dell, Dulaney said, comparing the company's popularity with Wal-Mart Stores, Inc., which offers products close to wholesale.

Dell user Pam Bowers, procurement and contracting manager at Trigon Insurance Corp. in Richmond, Va., said Trigon stayed with laptops from Dell because it has no trouble with delivery times or shortages.

"We were an IBM shop seven years ago, and we couldn't get desktops or laptops," said Bowers, whose company uses about 200 Dell portables.

Despite the growing influence of Dell's and Gateway 2000, Inc.'s direct marketing strategy and aggressive pricing, Jim Sniveley, systems consultant at Sun Oil Co. in Philadelphia, said Sun Oil is sticking with Compaq as a main portable provider because of the company's top-tier reputation.

"I don't think we have any reason to change at this point," Sniveley said. "The feeling is [that] with total cost of ownership, we're probably better off doing what we're doing" by buying from a top-tier vendor through a reseller instead of direct from a vendor such as Dell, he said. □

Java expo spotlights business tools

Java can do more than make graphics wiggle on your screen.

Enterprise applications will be a key theme at the Java Business Internet Expo in New York this week, analysts said.

"This isn't an eye candy show; it's not about applets — it's about business-critical Java, which is something the industry has been waiting for," said Ron Rappaport, an analyst at Zona Research, Inc. in Redwood City, Calif.

Upcoming announcements include the following:

■Sybase, Inc. in Emeryville, Calif., plans to make available an updated beta-test release of its Web-based Jaguar CTS transaction server with support for JavaSoft's Enterprise JavaBeans specification. Jaguar, which will let users run three-tier transaction processing applications on the Web, will ship by the end of this quarter, Sybase officials said.

■Scribe Technologies in Palo Alto, Calif., will introduce Java-based software that lets end users access corporate reports and other information via the Web. Scribe's ReportMart includes a browser-based client and a back-end server that provides access to reports and data stored in spreadsheets, word processors and other tools. Pricing on Windows NT starts at $15,000 for the ReportMart server plus $150 per user.

■Start-up Kinetoscope, Inc. in Tampa, Fla., will unveil its first product, a tool kit for building Java intelligent agents and messengers, the Versatile Intelligent Agent Kit. The agents can search and retrieve information from the Internet, Intranets or databases and alert users via electronic mail, pager or faxes. The tool kit costs $24,995.

■Neuron Data, Inc. in Mountain View, Calif., will present a tool, Elements Converter/J, that can convert graphical user interface screens created with Neuron Data's Elements Presenter C or C++ to Java without recoding. The tool will accelerate a company's conversion to Java, the company said.

■Raptor Security Systems, Inc. will announce plans to include Israeli-based Finjan Software, Inc. Java applet inspection software, SurfinGate, in its firewall product. SurfinGate examines the content of Java applets in real time and creates a security profile that describes potential risks of the incoming program.

■GraphOn Corp.'s thin client X Server for Java desktops, which has been licensed by Sun Microsystems, Inc., will be introduced as a shrink-wrapped product, Go-Jos, for $295 per user. The Campbell, Calif.-based company's software lets users access Unix applications from Java-enabled desktops.

— Pat Thibodeau and Craig Stedman

SCO tunes UnixWare for a run at the enterprise

By Jaikumar Vijayan

SCO, INC. is taking another tilt at the enterprise windmill. This time it has a "new and improved" version of its Unix-on-Intel technology that gives users greater scalability, reliability and Internet connectivity.

But the company's low-key image as a vendor of small-business platforms could make its enterprise pitch a hard sell.

Santa Cruz, Calif.-based SCO last week released details of its upcoming Systems V Release 5 (SVR5) Unix kernel. It also announced a beta version of its next-generation UnixWare operating system that is based on the technology. Actual product and pricing information will be available by early next year.

Features of SCO's SVR5 Unix kernel technology

- Clustering support
- Built-in high-availability device failover
- Support for up to 64G bytes of main memory and up to 1T-byte file systems
- Java-based administration
- Java Virtual Machine and Java Development Kit

The products are designed to give Intel Corp. systems users who are concerned about NT's scalability and reliability an alternative in the midrange commercial server space.

For example, UnixWare with SVR5 technology will have built-in high-availability and clustering, support for 64-bit file systems and 64-bit libraries, support for up to 64G bytes of main memory, up to 1T-byte file and file systems and 512 logical disks.

It also will support Java-based administration tools and give users the ability to access and manage Unix and Windows applications via the World Wide Web.

"Features like expanded memory and greater data capacity are certainly the kind of things SCO will need if they want to position themselves as an enterprise player," said Bob Celmer, a technical fellow at AutoZone, Inc., an automobile parts retailer and SCO user in Memphis.

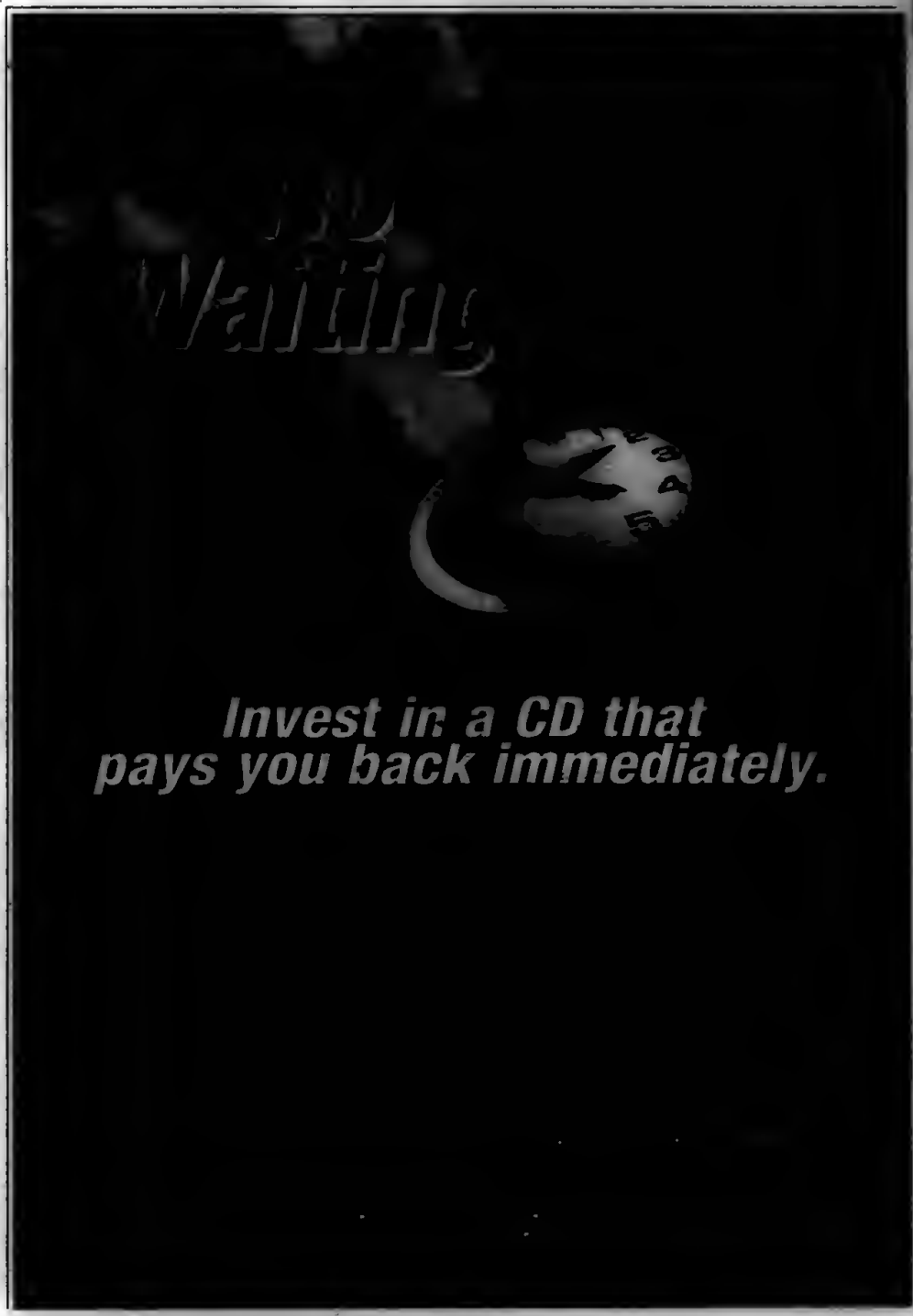
To break in, SCO needs strong hardware partners that have enterprise experience and are willing to pitch SCO UnixWare for large applications and database environments, said Tony Iams, an analyst at D. H. Brown and Associates in Port Chester, N.Y.

And that support may be increasingly hard to come by for SCO in the coming months, analysts said. Most of SCO's recent sales have come from low-end small-office systems sold by companies that have licensed UnixWare, including Compaq Computer Corp., Data General Corp., Unisys Corp., Siemens Nixdorf Informationssysteme AG and NCR Corp.

But some of those vendors also license basic Unix kernel technology from SCO for use in their own versions of Unix for much higher-end servers.

SCO has been trying to move such vendors to a common UnixWare operating system capable of spanning the Unix market from high end to low end.

But many of those licensees, including DG, Unisys and NCR, are focusing increasingly on Windows NT for midrange systems. And Sun Microsystems, Inc. is working hard to draw them in to the Solaris camp at the high end. For example, Sun recently licensed Solaris on NCR's WorldMark line of scalable Intel servers. Sun is reportedly courting other SCO vendors, including Sequent Computer Systems, Inc., to get them to run Solaris on their Intel boxes. □



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'net calendar standard due by year's end

By Barb Cole-Gomolski

BY YEAR'S END, the leading groupware makers expect to complete a standard for how electronic calendar information can be swapped via the Internet.

Members of the Internet Engineering Task Force Working Group on Calendaring and Scheduling Standards — comprising about 50 messaging and groupware vendors — are well on the way toward finishing the standard, iCalendar.

Anik Ganguly, president of Southfield, Mich.-based Campbell Services, Inc. and co-chairman of the working group, said products that support the specification should roll out by mid-1998.

ICalendar will let users of disparate groupware clients make appointments over the Internet. It also could ease electronic-mail migrations. Companies often are forced to migrate users in large groups because calendaring interoperability generally is poor among mail systems.

"We live and die by our [electronic] calendars," said Mark Chrobak, senior systems analyst at Northwestern Mutual Life Insurance Co. in Milwaukee. Chrobak said using iCalendar means that users can choose their mail client yet still share calendars with co-workers.

ICalendar defines how users can invite others to meetings and check their availability via the World Wide Web. It also lets users with proper security clearance add to-do items to someone's calendar and receive responses to invitations.

Eric Arnum, editor of the "Electronic Mail and Messaging Systems" newsletter in Washington, described the effort as a "great initial step" toward groupware interoperability.

"It's especially heartening to see messaging rivals Lotus [Development Corp.] and Microsoft [Corp.] cooperating on this," Arnum said. □

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GAO audit faults defense agency on year 2000

By Sharon Machlis

THE DEPARTMENT of Defense's financial agency hasn't addressed several crucial issues for fixing its year 2000 problems, a congressional watchdog agency has charged, raising the specter that the department won't be able to pay millions of military personnel and contractors in the new millennium.

The Defense Finance and Accounting Service (DFAS) has yet to create a complete schedule for testing and implementing year 2000 fixes, according to a General Accounting Office report released earlier this month.

In addition, the agency hasn't finished risk assessments on all systems that need fixes or identified all interfaces with external users who have connections with the service.

And a GAO audit found that some systems already claimed to be year 2000 compliant hadn't been thoroughly tested.

The DFAS, created in 1991, is charged with accounting for more than $1 trillion in Defense Department assets.

In its formal response to the report, the Defense Department agreed with GAO recommendations that DFAS improve its year 2000 plan by including detailed testing and implementation schedules.

Alice C. Maroni, acting undersecretary of defense, concurred that the service should create contingency plans if fixes aren't ready in time. She said it should also get written agreements with outside organizations whose systems connect with DFAS on how to approach the year 2000 problem. □

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Firms have second thoughts on tell-all Web sites

By Sharon Machlis

ALL THAT USEFUL information companies are posting on the World Wide Web — staff lists, product prices, future plans — may be just a little too helpful. For competitors.

"A little more judiciousness tends to be called for," said Winn Schwartau, president of The Security Experts, Inc., a consultancy in Largo, Fla.

Personnel directories can help customers find who they need easily. But they also help headhunters looking to steal employees — and hackers who seek unwitting accomplices, said Ira Winkler, author of the book *Corporate Espionage*.

A hacker technique called "social engineering" works like this: The hacker finds the names of newly hired employees, then poses as a company information systems staffer and asks for their passwords.

Consequently, some companies leave a few details off their Web pages.

At Parker Hannifin Corp. in Irvine, Calif., job postings on the company's Web site don't include the names of hiring managers. Instead, the system routes applications to appropriate people. "We don't want the manager stolen by somebody else," said Robert Deragisch, a data center manager.

Price lists can be crucial for many companies that try to conduct business over the Internet. But they also can aid competitors in some hot, price-sensitive markets.

RISK VS. GAIN

Experts advise companies to consider the trade-offs between the business value of posting Web data and the possibility that the information might help the competition.

Johnson Matthey Electronics in Spokane, Wash., wrestled with how much product information to post on its Web site, said information technology manager Brent Wilcox. Some engineers didn't want any data sheets exposed, but other business executives considered the Web presence crucial.

Tips on posting Web data

- Have someone in computer security and marketing screen information before it's posted
- Separate the corporate intranet site from the public Web site, so internal information isn't accidentally made public
- Consider whether the benefit of customers reading your data is worth the risk of competitors gaining access to it

"We settled on taking some of the details out," Wilcox said. "We don't talk about price until we are ready to acknowledge an order."

In extreme cases, Web data can threaten national security, some government officials said. The Central Intelligence Agency charged that the U.S. Department of Defense's GulfLink Web site about the Persian Gulf war "resulted in serious damage to intelligence sources and methods," according to a congressional report.

But many companies aren't worried about the reams of data they post on the Web, especially if similar information is easy to get in the physical world.

Dell Computer Corp. in Round Rock, Texas, allows Web surfers to price any Dell PC configuration, which also lets competitors track Dell pricing. But such competitive data already is available in advertisements and from industry consultants, said company spokesman Rick Scott.

"We're running $2 million a day of customer orders on the Web," he said. "You have to weigh whatever the downside is against that upside." □

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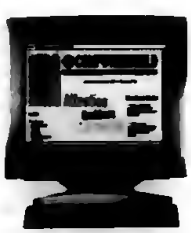

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Hardball sales tactics irk IS managers

CONTINUED FROM COVER 1

tive in the past year.

"There's a lot of snake-oil salespeople out there," said Brad Jensen, a vice president at Sabre Technology Solutions, the IS unit of AMR Corp.'s Sabre Group in Fort Worth, Texas.

The tenor of a vendor's sales practices can even be a factor in technology buying decisions. Eight out of 10 IS managers surveyed said they avoid buying from vendors that use heavy-handed tactics.

In more than two dozen interviews, IS executives described incidents of hardball sales tactics by vendors. Oracle and Computer Associates International, Inc. were singled out most frequently for overly aggressive or annoying tactics, although other hardware makers, consulting firms and telemarketers provoked users' ire as well.

Sabre Technology's Brad Jensen: "There's a lot of snake-oil salespeople out there"

CA and Oracle declined numerous requests for comment on the complaints about hard-sell tactics.

To be fair, most vendor salespeople don't regularly provoke their information technology customers. The *Computerworld* survey found that IS managers view most salespeople as honest and knowledgeable about their products.

Many vendors "have realized that the way to go is to form partnerships rather than create potential adversarial relationships" with customers, said Harvey Shrednick, former president of the Society for Information Management, a Chicago-based user group for IS executives. He is now a professor at Arizona State University in Tempe.

The bigger concern is that many salespeople don't do their homework about the businesses they visit, IS managers said.

The hot trend in sales and marketing is for salespeople to be knowledgeable "consultants" who understand a customer's problems and industry pressures and then suggest solutions, said Geoffrey Brewer, executive editor at *Sales and Marketing Management* magazine in New York.

But the *Computerworld* survey found that IS managers don't see that happening much. About three quarters of the respondents said IT salespeople don't understand the user's business.

Base: 106 IS managers

Source: Computerworld Information Management Group, Framingham, Mass.

TURN ON THE LIGHTS

"A lot of salespeople are just absolutely in the dark as to whether their technology is going to be a good fit for the customer that's looking at it," said Ed Muldoon, a consultant at Software Decision Consultants in Glenview, Ill. Muldoon sold software for 20 years and now advises IS organizations on purchases.

On the darker side of the equation, some IS executives complained about underhanded licensing tactics. A purchasing manager at a Texas-based energy company who requested anonymity said he was harassed by a salesman pushing Unix-based scientific software for use at a customer site in the Pacific Rim.

The purchasing manager told the salesman that the company wouldn't commit to a master licensing deal until someone at his firm's Asian office committed to the purchase. The salesman insisted there was a purchase pending by the Asian affiliate. But after checking with a purchasing manager at the Far East office, the U.S. manager found no such deal pending.

"The salesman basically lied to make the deal," the manager said.

Jeff Hessenius, a buyer for the state of Arizona in Phoenix, said one CA salesman went overboard by pushing a five-year maintenance "savings" plan for CA software products. Hessenius did his own number crunching and didn't see any such savings.

The CA salesman refused to negotiate the price or the terms and frequently went over his head to the state's chief information officer to try to land the deal, Hessenius said. The state eventually cut a different, less costly deal with CA, but the IS buyer said his dealings with the CA salesman felt "hostile" and too high-pressure.

Several CIOs said sales representatives at niche consulting firms are among the peskiest.

"We've seen a tremendous swing toward small consulting shops that use a lot of verve to try and sell into you," said John G. Stevenson, vice president of IT at Lennox International, Inc., a heating and air conditioning equipment manufacturer in Dallas.

To fend them off, "you have to get a little testy," said Stevenson, formerly CIO at Dr Pepper/Seven Up, Inc. For example, he and his staff typically issue a steely response such as, "We do not have a need for that product right now."

For products that Lennox is interested in, vendor salespeople are told to follow the firm's purchasing processes "or they lose out," Stevenson said.

Some sales representatives try the time-honored practice of starting at the top of the company's chain of command, hoping influence will flow downhill. For example, IS managers in the public sector complained about vendors that try to schmooze with the governor or other elected officials to get an inside track on contracts.

The best defense is to have rules or informal agreements that thwart the executive-suite tactic. "I've never had a boss who has wanted to force anything on me," Jensen said. "And I tell vendors that unless they've sold my coders and developers [on a product], then don't even bother wasting my time."

Whether they realize it, IS executives contribute to the problem of overaggressive sales pitches, said Joe Orlando, who was an IT salesman before becoming an independent consultant [CW, Dec. 9, 1996].

Many IS shops provide salespeople with office space, phone connections and electronic mail and let them roam their hallways, Orlando said. That allows vendor representatives to "flitter around like a butterfly collecting sales leads," he said.

And sometimes IS managers get in over their heads — or get outmaneuvered — when they try to negotiate complicated contracts that should be handled by trained purchasing specialists, Orlando said. □

Tips for dealing with IT sales representatives:

- Establish ground rules up front.
- Bring in your procurement officers and negotiators as early as possible.
- Establish a single point of contact for the salesperson and stick to it.
- If they go over your head, respond by going over theirs and ask to meet with their supervisor.
- Have them first meet with technical staff members who can evaluate their products.
- Insist on testing the product within your own environment.
- Don't let them take control of the sales process. Focus on your objectives.
- Don't let them pressure you into a sale. (As in, "Act now before our prices go up.") Chances are they're just trying to land a quick deal to make their quarterly quota.

Slideware and hissy fits

Sometimes the antics of salespeople can be so bad — as in, hope — that they provide IS executives with a few chuckles and a ready-made excuse for thinking a vendor goodbye.

Take the vendor that tried an end-run around CIO Bryan Kilcourse at Longs Drug Stores, Inc. It was selling slideware — products that exist only on marketing slides — and Kilcourse decided after a few meetings to show the sales rep the door. The guy responded by dropping hints that one of his bosses was a former neighbor of Longs' president.

Then he cooked up a strategy memo for going over Kilcourse's head. Apparently looking to cut costs a bit, the sales rep made copies on a machine in Longs' offices — and forgot to take the original with him. "It was a very specific memo," Kilcourse said. "I never saw those guys again."

While mingling at a hardware vendor's Christmas party, Maribeth Anderson, manager of technology at First Chicago Mercantile Services, was sworn at by its local sales manager, who then proceeded to berate her for not giving his company a fair shake on a server purchase she was making.

Prior to the outburst, the vendor was still trying to entice Anderson by bragging about the quality of its Chicago customer service staff — which was nice, except that First Chicago Mercantile's data center is located in St. Louis. "I kept on telling them that my data center wasn't in Chicago, but they just didn't get it," Anderson said.

So then she told them she was turning elsewhere, which led to the vendor hissy fit. And after that ran its course? "We kind of left the party early," Anderson said with a laugh. — Craig Stedman

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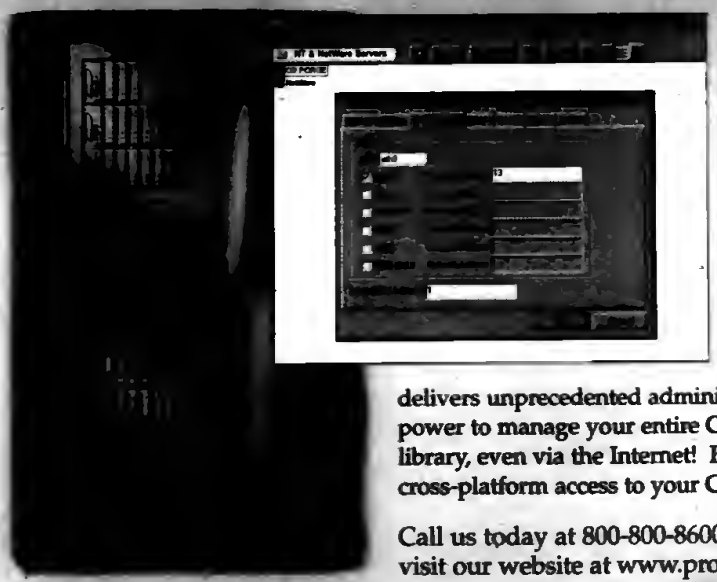

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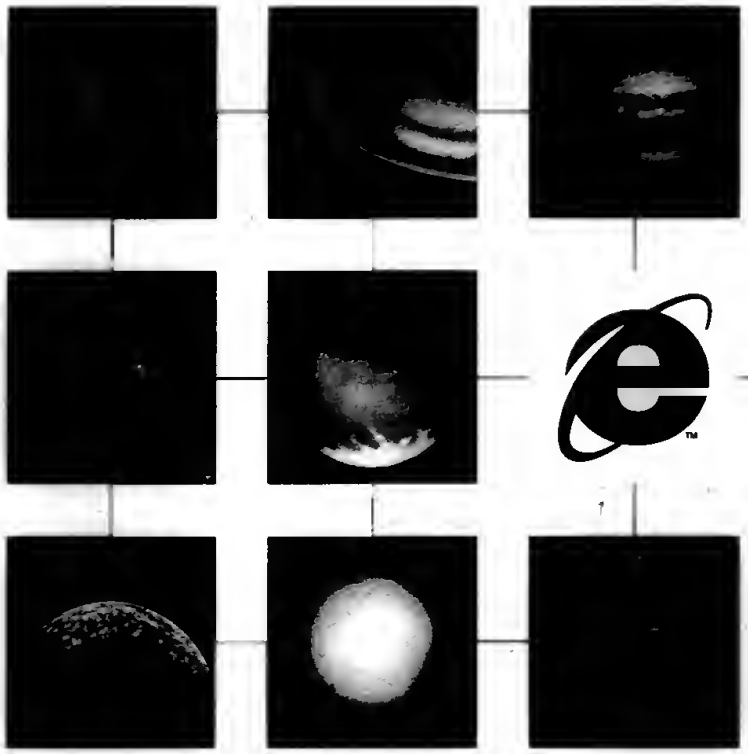

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Computer Industry

• Analysts say Apple may be ...

Cutting off clones to spite future

By Kim Girard

SHUTTING DOWN Macintosh clone makers could help boost Apple Computer, Inc. sales, but it might cripple Apple's future in the process, according to industry observers.

For now, the odds weigh heavily against clone makers — such as Power Computing Corp., Motorola, Inc. and Umax Computer Corp. — who are still negotiating contracts with Apple. Several clone makers received letters from Apple on Aug. 15 that said the company has no schedule for certifying their newest machines.

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For these and other related links, point your browser at: www.computerworld.com/links/

– Save the Clones! www.clones.alwaysapple.com

– MacCentral Manifesto and Petition: www.maccentral.com/news/

Clone makers require that certification before they can ship computers equipped with Apple's Mac OS 8 for the Common Hardware Reference Platform (CHRP).

"It looks like this is the nail in the coffin, but ultimately the decision on whether they want to kill the clones has not been made.

Apple is basically hanging these guys out," according to Tim Bajarin, president of Creative Strategies, Inc., a consultancy in San Jose, Calif.

Power Computing's former chief Joel Kocher said licensing issue prompted him to leave

"Apple can't leave Power Computing waiting much longer — they'll go produce Windows machines," said Mike Bailey, a systems analyst at Lockheed Martin Missiles & Space in Sunnyvale, Calif. "That would be the end of Apple. Without the cloners they can't be seriously considered as an operating system vendor."

Some Apple users are fretting about the future of the faster, less expensive machines clone makers provide — as well as the long-term growth of the Macintosh user platform.

On the Internet, users are circulating several petitions that support the clone makers (*www.always.apple.com/clone/ad2*).

UNRESOLVED

Apple's board of directors, with several members recently hand-picked by Steve Jobs, must step in within the next two weeks and end the uncertainty. There are still questions about the details in contracts for licensing fees and about licenses for the forthcoming Rhapsody operating system, said independent analyst Pieter Hartsook in Saratoga, Calif.

"[The lack of a licensing deal] sends a very poor message to Apple's resellers, developers and customers — that you can't trust Apple," Hartsook said. "Who would want to do business with Apple?"

Apparently not feisty Power Computing president Joel Kocher, who last week resigned amid rumors that he was forced out. Kocher cited "irreconcilable differences with Power Computing management over the way in which to move forward on the Apple licensing issue."

Jobs has led the drive to reverse Apple's position on the clone makers, who were expected to broaden the company's user base but instead grabbed many higher-end users.

In the fourth quarter last year, clone makers shipped about 25% of all Macintosh machines.

Still, the new crop of clones introduced at the recent Macworld Expo/Boston are a huge threat to Apple, "destroying" the company in terms of performance, said James Staten, an analyst at Dataquest in San Jose. □

FAQs: Apple vs. the clone makers

Q: *What caused the rift between Apple and its clone makers?*
A: Apple partly blames clone makers for cannibalizing high-end sales — and contributing to the company's $120 million quarterly loss announced in December 1996.

Q: *What percentage of the market is controlled by clone makers?*
A: About 20% in the second quarter this year, down from about 25% in the fourth quarter last year, basically due to shifts in demand when Apple had product shortages.

Q: *What is the status of the clone makers' pending licensing agreements?*
A: Licensing for the Mac OS 8 for the CHRP is up in the air. Also in limbo are future shipments of Rhapsody, Apple's next-generation operating system.

Q: *What can clone makers ship now?*
A: Any product with a system that came out before the Mac OS 8.

Telcos threaten Internet service providers

▸ *Gartner study sees 90% failure rate due to infrastructure costs*

By Matt Hamblen

BY 2001, more than 90% of the estimated 4,500 Internet service providers will be replaced by local and long-distance telecommunications companies.

Many providers simply will be forced out of business because of the substantial investment required to upgrade their infrastructure, according to an analysis last week by Gartner Group, Inc. in Stamford, Conn. "The hardest hit will be the estimated 4,100 local [Internet providers], only a handful of which own their own infrastructure," said Gartner analyst Eric Paulak.

Atlanta-based Internet provider MindSpring Enterprises, Inc. reacted casually to the analysis, which surfaced the same day MindSpring announced a new interface for its customers.

"From our standpoint, it's not an alarming report at all," said Ed Douglas, director of product management. "Most customers will still use dial-up services, and we are certainly well-positioned to serve them. We won't be going away."

Paulak said AT&T Corp. in Basking Ridge, N.J., entered the Internet provider world relatively late, 18 months ago, but now has more than 1 million subscribers, making it the largest Internet provider.

And Bell Atlantic Corp. in New York last week expanded its Internet services to much of New England.

Business customers of the Internet are worried about quality of service, Paulak said. They will mostly be pleased by the enormous market consolidation.

"Quality will absolutely go up, and you'll have more guarantees and a higher cost associated with those guarantees," he said.

With consolidation, Paulak said, business users will need to pick an Internet provider that does the following:

- Offers a service agreement that allows penalties for nonperformance.
- Plans to implement quality-of-service standards.
- Has a strong business-to-consumer customer ratio that will let the provider compete in a consolidating market.

Dan Taylor, an analyst at Aberdeen Group, Inc. in Boston, said many large, nontelecommunications Internet providers will continue to thrive because they offer services such as voice and fax service over the Internet, which telecommunications companies are slow to adopt.

AT&T plans to remain the No. 1 Internet service provider by offering a wide array of services

Keith Foster, director of product management for business customers at WorldNet, said AT&T will remain No. 1 by providing an array of services, including Internet access, wireless and frame-relay services.

But Paulak said Concert Communications Co., the pending company from the merger between MCI Communications Corp. in Washington and British Telecommunications PLC, will provide strong competition because it has a better business strategy and its own network.

AT&T has struggled to establish network access points since it split with BBN Corp. in Cambridge, Mass., in March, Paulak said. But WorldNet soon will have private access agreements with major carriers to "meet our demand for Internet services," Foster said. □

FROM THE EDITORS OF
COMPUTERWORLD
VOLUME 2, NUMBER 7
AUGUST 25, 1997

Intranets

A MONTHLY LOOK AT WEB DEVELOPMENTS BEHIND THE FIREWALL

VERTICAL INDUSTRIES: PART 2

Intra-Verts

Intranet use varies greatly by industry: Telecom companies are cutting-edge, many insurers have fallen behind, and (surprisingly?) entertainment firms are someplace in between

Reticent and behind the curve. Just now "getting it." A day early and a dollar richer.

That is how we would describe companies and their use of intranets in the insurance, entertainment and telecommunications industries, respectively — those we examine here in our second of two installments on vertical industries.

These fields differ in more ways than just their use of intranets. Not surprisingly, their use of technology reflects that. Insurers, bound by a conservative culture and heavy regulation, tend to look askance at media that facilitate free information sharing. The baby Bells, by contrast, live and breathe technology, so it's only natural they would experiment with, say, paging over an intranet before offering it to customers. And in entertainment, the emphasis (read: money and effort) is usually on the movie or CD, rather than on the back-office systems that coordinate promotion or distribution. But the value of intranets is beginning to be recognized.

And like the benefits, the challenges of adopting intranets vary by industry. If intranets are antithetical to the way insurers do business, they can be victim to a chicken and egg syndrome, even at telcos. And entertainment companies have bandwidth issues to consider.

But experts note one constant among the fray: To remain competitive into the next century, companies must adopt Internet technologies. Some of their stories follow.

INSIDE ▪ TELECOM, PAGE 2 ▪ ENTERTAINMENT, PAGE 4 ▪ INSURANCE, PAGE 9 ▪ INSIDE

Telecom Calls Intranet Shots

Empowered by strong networks, cutting-edge telcos embrace new technologies — and develop them for customers

BY STEVE ALEXANDER

Telecommunications firms tend to look at the intranet in two ways: what it can do for them and how they can use it as a testing ground for new customer services.

Telcos are natural intranet users because they are big companies spread over many states and thus have substantial internal communications needs.

"To some extent, the telcos are big bureaucracies. The average RBOC has $15 billion in revenues and 55,000 employees," says Traver Kennedy, director of wide-area network research worldwide at Boston-based Aberdeen Group. "They are more likely to have intranets because of their size and their technical capabilities. They all had voice intranets, and now they have data intranets." (A "voice intranet" refers to an internal phone network based on four-digit extensions.)

LEVERAGING EXPERIENCE

But a few telcos are using their own intranet experiences as a way to prepare intranet products for customers. MCI Telecommunications, Inc. recently announced that it will offer dedicated hosting of intranets for business customers. Among the services to be offered are multicasting — one-to-many transmissions — and customer service applications similar to those on MCI's own intranet.

"We're leveraging the internal applications we built for our intranet," says Brad Carlson, director of Internet and interactive services at MCI in Pentagon City, Va.

MCI claims that customer service representatives are saving the company $12 million annually by using an intranet database to answer customer questions more quickly. MCI also uses its intranet to provide human resources information, phone directories, internal PC help desk functions, purchasing and a list of marketing information used by field service representatives via dial-up connections. More than 70% of MCI's 55,000 worldwide employees are using the intranet.

Still, cultural barriers to intranet adoption abound. At Ameritech, Inc., for instance, progress has been slow.

"The challenges to the intranet are really more cultural than anything; there really has been no technical challenge to it," says Ken Hildreth, director of electronic communications at Ameritech in Chicago. "People don't want to develop applications until there is a huge audience, and other people don't want to give employees the browsers and computers they need to use the intranet until the applications are there. That's why we're seeing the intranet advance little by little."

Ameritech's intranet provides information on human resources, corporate planning and marketing. The company says some mission-critical applications are also on the intranet, but it declined to identify them. About 40,000 of Ameritech's 66,000 employees have desktop PCs that could use the intranet, but it doesn't know how many actually use it.

LEADING THE PACK

But despite cultural barriers, telcos may be ahead of other industries in intranet adoption because they have a deeper understanding of networking, says Eric Vaughn, director of electronic commerce at Bell Atlantic Corp. in Silver Spring, Md.

"Telcos were connected more than most industries, even before TCP/IP. It's a natural evolution of that to put intranets in place. Also, telcos approach these things differently because they are very cognizant of reliability, response time, quality of service and security," Vaughn says.

Bell Atlantic is one of the more adventurous telcos. It is experimenting with integrating paging into its intranet and is finding it challenging. About 200 employees are involved in a trial in which a worker can send a message to a recipient's special electronic-mail address (prefaced with the letter "P") and automatically send an alphanumeric page.

"One of the problems is that there are a lot of paging companies and, as a result, many gateways to go through," Vaughn says. "We're send-

ILLUSTRATIONS BY LARRY GOODE

The Starting Bell

- **25,000 OF THE 40,000 Bell Atlantic employees with PCs are on the intranet. Total employee count is 65,000.**
- **MORE THAN 10,000 customer service representatives refer to the intranet to answer customer questions.**
- **THE INTRANET ALSO offers human resources information, press releases, information systems-related information, organizational charts and phone listings.**

ing an electronic message to the paging company's server, and each paging company has a proprietary format. Learning those formats and handshakes is a challenge."

Bell Atlantic could introduce the paging option to its full intranet user base in about 90 days if it decides to go ahead, Vaughn says.

Bell Atlantic is also considering providing wireless access to the intranet for thousands of field technicians using personal digital assistants. That will probably be introduced to the intranet early next year, according to Vaughn. It would make field technicians more productive because it would cut down on travel to the office and make it easier to reschedule appointments, he says.

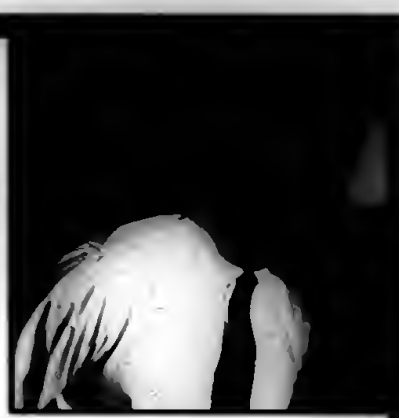
By early next year, Bell Atlantic hopes to add an extranet function to its intranet that will allow customers to place phone service orders, report trouble and pay their bills via charge or debit cards. By mid-1998, Bell Atlantic may add a fee-based customer service called "bill analysis," which would allow large customers to see what their Bell Atlantic bills would have been if they had chosen different service options.

"Obviously, if we could reduce the call volume in our customer call centers it would be a savings, but that's not where we're at right now," Vaughn says. "The intranet is too immature, so it's too soon to say if we could do these things for the return on investment. Right now we would do it because customers want it and for strategic reasons, because our competitors will offer similar services."

But Bell Atlantic, too, is encountering cultural barriers to intranet use.

Vaughn says providing service to customers through the intranet challenges Bell Atlantic's marketing culture. Marketers are used to tailoring their messages to various customer segments such as large businesses or federal government agencies; they might offer special promotions to those groups that other segments of the customer base would know nothing about.

But any contradictions in marketing messages or special offers will quickly become apparent to all customers viewing company pricing information on the intranet's extranet extension, Vaughn says. That is forcing Bell Atlantic to coordinate its marketing efforts to a much greater degree than it has in the past, he says.



DESPITE CULTURAL barriers, telcos may be ahead of other industries in intranet adoption because they have a deeper understanding of networking.

ERIC VAUGHN
DIRECTOR OF ELECTRONIC COMMERCE
BELL ATLANTIC

WHAT THE FUTURE HOLDS

The future of telco intranets may include video, largely because of its potential for lowering the costs of employee training.

"It would be more economical to do training over the intranet than to travel, which involves hotels, flights and time away from the job," says Adele Meadows, a solutions consultant in Ameritech's Internet and multimedia solutions department in Chicago.

Ameritech is evaluating low-bandwidth, one-way video based on the H.324 ITU standard, which involves transmitting real-time video at 5 to 8 frames per second. "We hope to resolve the video issue by the end of the year and buy an off-the-shelf solution," Meadows says.

MCI is considering offering two-way voice, video and data over the intranet, but bandwidth constraints make it a relatively low priority, Carlson says. "We're tending toward multicasting, where it's a one-way voice and video presentation that has less impact on the network," he says.

Alexander is a freelance writer in Edina, Minn.

PHOTOGRAPH BY KATHERINE LAMBERT

Following the Yellow Brick Road

Film and music companies find that intranets are the way to reach their global empire

BY NATALIE ENGLER

Hollywood may be known for its glitz and special effects. But off camera, technology has been slow to keep pace.

"As much technology as you see on the screen," says Kim Spenchian, vice president of information services at Metro-Goldwyn-Mayer, Inc. (MGM), the company behind the hacker classic *War Games*, "there hasn't been much technology behind the screen."

The main reason for the industry's inertia, says Mark Hardie, senior analyst at Forrester Research, Inc. in Boston, is that "traditional technology is transaction processing-oriented. And that's not what this business is all about."

But the entertainment business is changing, and some large companies are responding. "With the expansion of intellectual rights, licensing, merchandising, interactive games and other uses for intellectual property, information is becoming more valuable," Spenchian says.

And companies are scrambling to distribute that information as quickly and cost-effectively as possible. Many see intranets as part of the big picture.

They're still in the planning and early rollout stages. Santa Monica, Calif.-based MGM has begun intranet-enabling client/server applications such as its Sales Tracking and Rights System. The customized application built in Sybase, Inc. and Powersoft's PowerBuilder contains information about copyrights, trademarks and availability of its more than

Continued on page 6

The one truly open email and groupware solution

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It's Part of the Game

Arcade uses intranet for entertainment

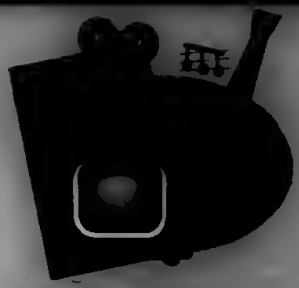
High-tech arcade maker Sega GameWorks is using an intranet to provide visitors to its entertainment centers with a unique Web experience.

Much like Cybermith entertainment centers, where customers sip cappuccino and surf the Web, Sega's facilities in Seattle and Las Vegas combine technology and real-world comforts. A coffee shop, pub and pizza kitchen join a game room and "Internet Lounge," where access to the intranet is located.

The intranet offers game players the chance to surf for insider tips on Virtual Reality, Daytona and Super GT before they go downstairs and race an opponent. Newcomers can visit intranet-based virtual "neighborhoods" to chat, test their "love compatibility," customize a personal GameWorks home page or check out the Web via a T1 connection.

The closed intranet environment enables GameWorks to provide unique content, says Kristin Marlow, interactive producer. "We have control over the look and feel and don't have to worry about cross-platform compatibility or low bandwidth," she says.

The intranet also connects GameWorks arcades to the corporate headquarters in Los Angeles. A combined venture of DreamWorks SKG, Universal Studios and Sega Enterprises, GameWorks expects to open 100 entertainment centers around the world in the next five years. All of the centers are expected to be up on the network, with internal and external areas separated via firewalls and encryption, says Sam Gadsden, director of technology.



When this happens, GameWorks will be one step closer to the future envisioned by Ray Lauzzana, research director of electronic workplace technologies at Gartner Group. "The Internet has presented an opportunity to take the pulse of the market preferences of consumers," he says. "That information can be processed and discussed on an intranet."

— NATALIE ENGLER

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Continued from page 4

4,000-title library of home videos, interactive software, music, licensed merchandise, films and TV series. The application began in the sales group but quickly expanded to become the company's main product database.

The short-term goal is to make it available throughout MGM. The "ultimate goal," Spenchian says, is to get the "whole business suite" on the intranet.

MGM is not alone in its intranet outlook. "A lot of entertainment organizations have vast libraries of different media types and are starting to look to their intranets to manage [and distribute] it all," says Ray Laracuenta, research director of electronic workplace technologies at Gartner Group, Inc. in Stamford, Conn.

But given their proclivity for generating and transmitting multimedia files, entertainment companies have to build intranets with enough bandwidth to deal with "a unique proportion of bandwidth-consuming data types," he adds.

"HERE WE LEARN to send music throughout the world by first sending it down the hall."

JIM GRIFFIN, CIO
GEFFEN RECORDS

FALLING COSTS EXPECTED

A case in point is BMG Entertainment. Before the $5.8 billion entertainment division of media monolith Bertelsmann AG releases a new music album, its marketing department has to send everything from cover art to sound clips to videos from New York to 40-plus affiliates in territories as far-flung as Japan, Australia, Turkey and Thailand.

Without using its intranet, distributing that content costs hundreds of dollars per release per territory in shipping charges, says Scott Dinsdale, vice president and chief information officer. And any change in, say, a photo of David Bowie or the order of songs on an Annie Lennox album forces BMG to reship the entire package.

But with an intranet application, the bulk of that expense should disappear. Within the next year, the company plans to use a Netscape Communications Corp. or Microsoft Corp. Web server with standard browsers and media-rich attachments, such as Progressive Networks, Inc.'s RealAudio and RealVideo, to send multimedia over IP to all of its territories.

BMG also uses its intranet for more traditional business processes. Like MGM, the company is intranet-enabling client/server applications to give people in remote territories access to business information such as sales figures and release schedules. Meanwhile, its Australian facility recently introduced a browser-based ordering system that lets retailers order products, check the status of releases and orders, and correspond with people at the company's headquarters over an extranet. Dinsdale said he expects the intranet to pay for itself in months by eliminating value-added network charges and costly updates and by streamlining the order process. If it succeeds, other facilities will follow.

Firms such as Geffen Records, Inc. see intranets as a way to prepare for bigger changes promising to shake up the industry. To the entertainment world, the future looks increasingly digital.

It is this vision that Jim Griffin, Geffen's CIO, sees when he and his staff work on the company's intranet. "On your intranet you can create a more mature environment than you find in the world," he explains. Geffen uses Netscape Commerce Servers and Microsoft Internet Explorer with QuickTime, RealAudio, RealVideo and Shockwave plug-ins, as well as a Paperview plug-in from Visioneer, Inc. that allows it to scan news articles straight into the network, built on a 100Base-T backbone, and have them pop up on users' desktops.

"Here we learn to send music throughout the world by first sending it down the hall," he explains.

But Geffen's intranet, "Geffen World," is more than a technological proving ground. It distributes everything from calendars, sales and airplay data to telephone and electronic-mail directories, publicity information and menus from local restaurants. The intranet even allows those traveling to download graphics, logos and fonts from their laptops or retrieve videos, listen to music and track the company's release schedule. The extensive use of the intranet "started with the technology people," Griffin says. But "over time, the average employee has begun to live on their browser throughout the day."

And finally, there's the dilemma of keeping up with the pace of change. While companies slog through politics and hiring dilemmas, Griffin says, in a garage nearby "a 14-year-old kid is distributing video, audio and text about his favorite rock band."

Engler is a freelance writer in Cambridge, Mass.

PHOTOGRAPH BY LARA JO REAGAN/SABA

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Uncalculated Risks

Intranets seem custom-made for struggling insurers battling high internal costs. So what's the problem?

BY JOSEPH E. MAGLITTA

Could this really be the same industry that a generation ago boldly helped launch the age of computerized business? Never mind about intranets — poke around the $500 billion insurance business today and you might find a prehistoric mainframe or two, still bending, folding and mutilating punch cards.

But as the new century looms, industry analysts and consultants say the industry must regain the technology adventurousness it lost during the lean 1970s and disaster-filled 1980s and early 1990s. If not, they warn, many insurers could fade into antiquity as silently as their once-magnificent computing machines.

Compared with new, more techno-savvy competitors Fidelity, Inc., American Express Co. and Merrill Lynch & Co., which are now entering the once-sacrosanct insurance business, traditional insurers are "well behind the [intranet] curve," says Richard Aronson, president of the Foundation for Issues Research & Management, Inc. (FIRM) in Schaumburg, Ill., a private company that studies the industry. Full-service financial firms have a big head start in deploying Web technologies, especially in the online transaction processing and back-end intranets needed to sell insurance over the Web, adds Mark Savoty, national director of insurance consulting at Ernst & Young in New York.

Aronson faults top executives, many of whom are very technically challenged and afraid of technology. "They don't do anything until they get hit over the head with a stick by one of their competitors," he says.

Indeed, a new FIRM study finds that insurance companies have the lowest intranet usage of any major U.S. industry. Of 2,400 companies polled, only 10% were using intranets. The average for all U.S. business is 33%, according to International Data Corp. in Framingham, Mass.

NEEDED FOR SURVIVAL

These findings shock Mia Shernoff, managing director of online service at The Aon Group, the nation's largest insurance brokerage and consulting firm. Shernoff, a Citibank information systems veteran, has introduced the $3.3 billion Chicago firm m intranet applications that include an extended intranet called AonLine, which gives clients online access to customized risk information. "Having an intranet," she says, is essential "for competitive survival."

To date, the modest Internet activity among insurers has focused on public Web sites. Yet Aon, Chubb & Sons, Cigna, The Progressive Corp., St. Paul Insurance and others have begun to show that intranets and extranets can play key roles for life, property, health and casualty insurers, reinsurers and industry consultancies.

There's no shortage of strong business drivers that would seem to make both intranets and the Internet a natural for insurers: notoriously high administration costs, national and international consolidation, legions of widely scattered agents and brokers.

Knowledge management systems, for example, could make it easy to bring best practices and key information to underwriters and brokers scattered around the country or world. Aronson explains, "Intranets can help underwriters see how market pricing is going, monitor weather and the environment and help company lawyers and others keep up with the avalanche of daily new insurance regulations and court decisions."

But the industry's conservative, self-satisfied, tight-fisted environment that's grown more cautious about technology since pioneering efforts in the 1950s and 1960s has helped keep insurers away from intranets, observers say. Heavy industry regulation and legions of lawyers haven't helped.

"There's definitely a certain culture in insurance that's antithetical to intranets," says Leilani Allen, a former IS executive who worked in insurance and banking prior to joining Tenex Consulting in Burlington, Mass. She tells of one major insurer whose IS department offered funding for a new intranet project. "People were reluctant to step up and sponsor. They just didn't see how sharing information was a positive thing," she says. The effort died.

Many insurers suffer with poor infrastructure, notably old SNA networks

Continued on next page

WHAT'S ONLINE

Continued from page 9

and lack of modern desktop PCs. Only one in three has a LAN, according to the FIRM. Few even have TCP/IP. Large firms tend to be in better shape than medium and small brethren. But all have a tough time attracting intranet and Web talent m what some have perceived as a ho-hum environment.

Still, some more progressive insurers are excelling. Chubb's 18-month-old intranet with 'net links, ChubbNet, is paying dividends, according to Don Garvey, assistant vice president of information technology at the Warren, N.J., firm. One financial analysis group, he says, saves $12,000 or $13,000 a month in overnight delivery charges. Also, instead of buying costly company data from Dun & Bradstreet Corp. or Lexis-Nexis, Garvey says, Web-surfing analysts post free material on a special home page that underwriters can easily access. ChubbNet has also replaced the legacy corporate electronic-mail system and company newsletter.

Of course, ChubbNet did require some groundwork: a four-year effort to put new PCs and TCP/IP on 8,000 company desktops in 65 company locations in the U.S. and Canada. The "multimillion-dollar" project was to finish this month.

Over at Aon, the extranet has been a big hit with customers, notably risk managers and other financial executives, Shernoff says. They pay $10,000 a year to get online access to personalized analysis tools, policy data, external information, news, claims, surety bonds and other information that normally would take much longer to assemble.

"WE MAY NOT BE on the gee-whiz cutting edge, but our intranet is adaptable and usable."

MIA SHERNOFF, MANAGING DIRECTOR, ONLINE SERVICE, THE AON GROUP

Shernoff's group is now developing greater customization, and perhaps "push" information, via Microsoft Corp.'s new Personalization Server. Other intranets at Aon add new functionality and longevity to Oracle databases, SQL servers and legacy processing applications. Nearly 50% of Aon's Notes users in the U.S. have been Web-enabled with Domino, as have those in Mexico and Latin America. "We may not be on the gee-whiz cutting edge," Shernoff says, "but our intranet is adaptable and usable. Our risk managers are not computer experts."

At Progressive Insurance Corp., Chief Information Officer Alan Ditchfield says intranet-enabling legacy mainframe applications has reduced training time for using line-of-business applications from two years to three weeks. "We have millions of lines of logic and code developed over the last eight or nine years that we can spice up," he says. Next step: equipping the firm's 1,000 roving claims settlement vans with wireless devices that can connect to company intranets and the claims systems database.

Will such uses become the norm? Opinions differ. Ernst & Young's Savory says the next year will see more and bigger intranet projects in the industry. As in banking, development of Internet applications may finally spark overdue intranet applications. Growing numbers of service firms, from IBM to upstart boutiques such as Lifecom.Inc., have created new offerings to help insurers develop intranets and other Web applications.

But Tenex's Allen fears that industry inertia may be too strong. "I don't see [intranets] ever taking off in insurance," she says. Aronson counters, "Whether they want it or not, insurers cannot resist the stampede. Some will get crushed."

Maglitta is a freelance writer in Cambridge, Mass.

RESOURCES

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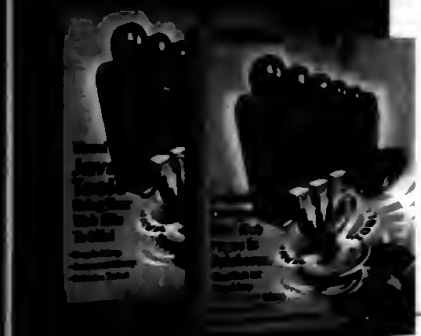

Visual Cafe & Visual Cafe Pro

Arthur van Hoff

Chief Technology Officer, Marimba, Inc.
Author of Java Compiler

The best Java™ development tools? Ask the guy who co-created Java.

While we'd like to think Symantec's Café™ IDE is Arthur van Hoff's best friend, this particular distinction goes to his buddy Trix (that's him on the right - the one with four legs.)

Which is not to say we don't rank high on van Hoff's list. Recently, we asked the co-creator of Java what he likes in a development environment. And why he chose Symantec's Java tools.

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Other considerations? "Compatibility," van Hoff says. "I want 100% compatibility with Sun's JDK. Symantec's JIT runs on Sun's standard JDK, which is an absolute requirement."

Van Hoff has put these and other Symantec assets to work in the creation of his company's dazzling new Castanet™ channel publishing system, designed to automatically distribute and maintain software applications and content within a company or across the Internet. "Soon, you'll be able to seamlessly publish Castanet channels with Symantec tools," he adds.

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OPINION

Vision quest I know it's too early for New Year's resolutions, but I've got one that just can't wait. The next time a computer industry vendor unveils another Vision with a capital V — one of those grandiose, far-reaching, "revolutionary" product road maps — I'm not going to believe a syllable of it.

Instead of falling prey to Vendor Vision Babble, a protective string of code words will automatically trill through my mind like a mantra: Sedona, Cairo, Copland, AD/Cycle, OfficeVision, SAA. Recognize any of those overpromoted technovisionary flops? All collapsed in on themselves from the weight of immature or improbable technologies. The only visions that work are the simple thematic ones ("The network is the computer.").

Consider the unlamented demise of Oracle's 3-year-old Sedona object development software, which is the most recent evidence that the rest of these visions are for people on drugs or mountaintops. Oracle couldn't even talk its own Packaged Applications unit into using the first pieces of the object-based technology (see story, page 55). I'm convinced that these tantalizing road maps with their cutesy code names hinder rather than help IS planning efforts. They seem to waste years of effort, tons of money and astronomical amounts of developer time. IBM learned that painfully enough with SAA, OfficeVision and AD/Cycle. Apple and Microsoft found it out with Copland and Cairo, their still-born object-oriented operating systems.

It wasn't long ago that Novell envisioned that its Novell Directory Services would become the connecting point for 1 *billion* devices such as computers, cars and even kitchen appliances — all communicating over electric power lines, no less. Technology in today's network-centric world needs to be modular, standards-based, easily deployed and just about immediate to market. So the next time you hear "It's gonna be so great when it gets here," feel free to try my mantra.

Maryfran Johnson, *Executive editor*
Internet: *maryfran_johnson@cw.com*

LETTERS

Don't believe everything you read on tabloid-like Internet

HAVING JUST read your cover story ["Lies, damn lies and the Internet," CW, July 14] I am reminded of Pierre Salinger and his attempt to prove that TWA 800 was shot down by a Navy missile.

He said he had gotten his information from "reliable sources" on the Internet.

If people believe what they read online, I wonder if I could sell beautiful mountain-view homes in the Florida Everglades?

It is unfortunate that companies such as those detailed in the article have had to face the brunt of misinformation on the part of people who think it is fun or serves a purpose. I tell friends and family to consider what they read on the Internet as they would what they read in the tabloids: junk.

David S. Weir
Chicago
dweir@bluefinmicro.com

Editor's opinion perpetuates encryption paranoia

EDITOR PAUL GILLIN writes in his "Up Front" column [CW, July 14], "Much of the computer industry, in tandem with privacy advocates, opposes key recovery because of the (correct) belief that people won't send secure messages if they think the government can look at them." Unfortunately, by adding your own opinion with the parenthetical "correct," you're perpetuating an unfounded paranoia about government-accessible encryption.

The fear that *some* encrypted E-mail won't be sent just because the government might be snooping is a weak argument against key-escrow encryption.

How many people refrain from making phone calls, particularly on easily accessible cell phones, because of the possibility the government might be listening? If you're that concerned about privacy, you need to do a lot more than just encrypt E-mail.

Mike Barnard
Plano, Texas

Mac fans owe debt of gratitude to Bill Gates

KUDOS TO Executive Editor Maryfran Johnson for her suggestion that Macophiles "Grow up and get a grip" [instead of] viewing Microsoft as some sort of evil empire [CW editorial, Aug. 11]. I'm a Mac fan, but I've wondered if the Mac would even be around today had it not been for Microsoft. A better user interface doesn't make sales into the business arena — applications do. Microsoft supplied those when Apple was trying to get Macs on to corporate desktops. Instead of booing Bill Gates, I think Mac fans should thank him for what he did and what he's doing again. Is it self-serving and profit-oriented on his part? Of course it is. But Mac fans will again reap benefits in terms of simply sustaining the Macintosh.

Would the Mac be here without Microsoft?

Mark Dougherty
Wilmington, N.C.

What's with page numbers?

I HAVE BEEN a *Computerworld* subscriber for several years. I love your magazine and read it religiously every week. Your articles are well-written and informative. It took me some time to get used to your new page layout, however, and I am confused about how you number your pages.

Do advertising pages count as regular pages or not? In your July 7 issue, for example, between pages 45 and 48 you have a two-page spread for Compaq, which you count as pages 46 and 47.

Following page 48 you have four advertising pages and the next text page is numbered 49, so you didn't count any of those four. What gives?

Charles DeRosa
Pittsburgh
cjderosa@uss.com

Editor's reply: In our July 7 issue, this reader received several pages of regional advertising. Because not all subscribers receive those extra advertising pages, they're officially counted (in this case) as 48A, 48B, 48C and 48D. Readers can find a breakdown of the regional advertising in the Advertisers Index that appears near the back of every issue. We regret any confusion this may have caused, and we hope this explanation helps.

Computerworld welcomes comments from its readers. Letters shouldn't exceed 200 words and should be addressed to Maryfran Johnson, Executive Editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax number: (508) 875-8931; Internet: letters@cw.com. Please include an address and phone number for verification.

SECRETS & STRATEGIES

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23. Dir./Mgr. Sys. Development, System Architecture
31. Programming Management, Software Developers
41. Engineering, Scientific, R&D, Tech. Management
60. Sys. Integrators/VARs/Consulting Management

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11. President, Owner/Partner, General Mgr
12. Vice President, Asst. Vice President
13. Treasurer, Controller, Financial Officer

DEPARTMENTAL MANAGEMENT
51. Sales & Mktg. Management
70. Medical, Legal, Accounting Mgt.

OTHER PROFESSIONAL MANAGEMENT
80. Information Centers/Libraries, Educators, Journalists, Students
90. Other Titled Personnel

3. Do you use, evaluate, specify, recommend, purchase: (Circle all that apply.)
Operating Systems
(a) Solaris (e) Mac OS
(b) Netware (f) Windows NT
(c) OS/2 (g) Windows
(d) Unix (h) NeXTstep
App. Development Products ❑ Yes ❑ No
Networking Products ❑ Yes ❑ No
Internet Products ❑ Yes ❑ No

4. Which of the following products do you buy, specify, recommend or approve the purchase of? (Check all that apply.)
(a) ❑ Internet software
(b) ❑ Internet browsers
(c) ❑ Web authoring/development tools

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70. Mining/Construction/Petroleum/ Refining/Agriculture
80. Manufacturer of Computers, Computer-Related Systems or Peripherals
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(b) Netware (f) Windows NT
(c) OS/2 (g) Windows
(d) Unix (h) NeXTstep
App. Development Products ❑ Yes ❑ No
Networking Products ❑ Yes ❑ No
Internet Products ❑ Yes ❑ No

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No justice at Justice

Gary H. Anthes

Chiseled in granite on the facade of the Justice Department building in Washington is this bit of hypocrisy: Justice To Each Is The Good Of All. It's a cruel joke and a slap in the face for Inslaw, Inc., a tiny software company that reminds us that David doesn't always slay Goliath.

Why did Justice stiff Inslaw? Why have so many officials refused to deal with the case?

If you live outside the beltway, you may not have heard of "the Inslaw affair," which will never be listed with Watergate, Iran-Contra and Teapot Dome in the annals of government wrongdoing. But on some awful scale of malfeasance, cover-up and indifference, it would be hard to match the sad tale of what the Justice Department has done to Inslaw.

You don't have to take my word for it. Public records show that in 1983, the Justice Department stopped paying Inslaw for use of the company's case-tracking software, throwing Inslaw into bankruptcy. In bankruptcy court, Inslaw alleged that the Justice Department continued to use the software. In 1988, a federal judge agreed, ruling that the government "took, converted, stole" the software through "trickery, fraud and deceit."

The Justice Department lost an appeal two years later, but in 1991, it succeeded in getting the original $8 million judgment set aside by arguing that the bankruptcy court had exceeded its authority.

Meanwhile, a congressional committee probing the affair repeatedly sought documents about Inslaw from the Justice Department. After two years of stonewalling, Justice Department officials finally admitted that many of the materials had mysteriously disappeared. In 1992, the committee capped its three-year investigation with a scathing report that said the department's "actions against Inslaw represent an abuse of power of shameful proportions."

Other allegations in the case are even more sordid. Inslaw officials and others have given sworn testimony that the software was given or sold by Justice Department officials, including former Attorney General Edwin Meese III, to intelligence agencies in Canada, Israel, Iraq, Libya and South Korea.

And in 1991, a freelance writer investigating the Inslaw affair was found dead, his wrists slit, in a motel bathtub in West Virginia. His friends said he had recently obtained information — to be confirmed by a local source he had gone to see — that would crack the Inslaw case. Police called the death a suicide, but the congressional report on Inslaw said the local investigation was flawed and murder couldn't be ruled out.

Now Inslaw has been dealt another, and perhaps final, blow. Earlier this month, a federal claims court ruled there was "no merit" to Inslaw's claims. The Justice Department promptly declared the case closed.

How much merit there is to Inslaw's allegations is hard to say, but certainly many troubling questions remain. Why did the Justice Department stiff Inslaw? Where did the software go and why? What happened to those documents? Why have so many high-ranking officials refused to deal with the case?

Attorney General Janet Reno should do what she and three of her predecessors have refused to do — appoint an independent counsel to get to the bottom of the affair once and for all. For an organization to investigate itself, as the Justice Department claims to have done, is absurd.

If Reno needs any inspiration, she might stop to read another inscription on the building where she works: Where Law Ends, Tyranny Begins. □

Anthes is Computerworld's senior editor for special projects.

That legacy looks more like a junker

Michael Schrage

Say you've been driving a 1971 Pontiac for the past 26 years. Why? Because you're the sort of idiot who'd rather keep tinkering with something that works than shell out the big bucks for the transportation you really need. So you've had your car repainted, repaired, retuned, recalibrated and reupholstered on a regular basis. It still runs, kind of, but . . .

Now you claim that the "investments" you made in the car make it worth tens of thousands of dollars? Get real.

Yet that seems to be what a recent commentary in *Information Week* would have us think about legacy systems. Apparently, IBM did an economic analysis that concluded that legacy systems represent some $5 trillion worth of investment. Yes, that's trillion with a T.

Gollygeewhillikers! That's a mighty big number. You could pay off a national debt with that kind of loose change. Alas, even if $5 trillion is an accurate number — and just for kicks, let's assume that it is — it's a thoroughly meaningless number for every thinking individual who reads this newspaper. The idea that legacy systems somehow embody a multitrillion-dollar value is — in the context of these times — a pathetic joke.

Does the word depreciation mean anything to IS and its corporate masters? You know, until a bank has the courage to write off its bad loans, the loans are still carried on the books as assets.

Markets determine the value of investments, not accountants. Never confuse an investment with a sunk cost. Corporations shouldn't make that mistake with their legacy systems. But, what the heck. They can't seem to help it.

So here's a modest proposal to gently shock America's CIOs and their bosses into a little more honesty about their legacy investments: Let's tax Cobol.

We tax liquor and cigarettes. And we tax air conditioners that aren't energy-efficient. Think of a Cobol tax as a "sin tax" on legacy systems. How do we do it? Outside auditors usually are sharp enough to know how much money corporations spend on maintenance vs. new systems development.

Think how much money a Cobol tax could raise.

If companies really are spending hundreds of billions of dollars per year on legacy maintenance and upgrades — as our friends at IBM and *Information Week* contend — then a Cobol tax would raise tens of billions of dollars. Why should America have a tax policy that subsidizes computational pollution? Sure, we might force 50-year-old programmers to learn a new language, but, hey, that's what human capital renewal is all about.

Maintaining a decrepit legacy is a pathology, not a choice.

Seriously, though, it's time organizations reassess their internal economies and encouraged their own "taxes" on legacy maintenance as a way to induce the organization to invest in systems and applications that are easier to develop, manage and maintain.

Indifference between a dollar spent maintaining a decrepit legacy and a dollar invested in a new and necessary application is a pathology, not a choice. We end up with the worst of three worlds by investing in legacy systems, newer systems and the migration paths between them.

Even worse, we end up with "studies," by people who should know better, that say our liabilities really are valuable assets. And we wonder why IS has a bad rep. □

Schrage is a research associate at the MIT Media Lab and author of No More Teams! *His Internet address is schrage@media.mit.edu.*

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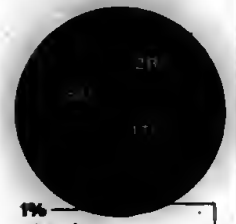
GLOBAL PROBLEM

A geographic breakdown of worldwide company spending on year 2000 systems integration, professional services and outsourcing services

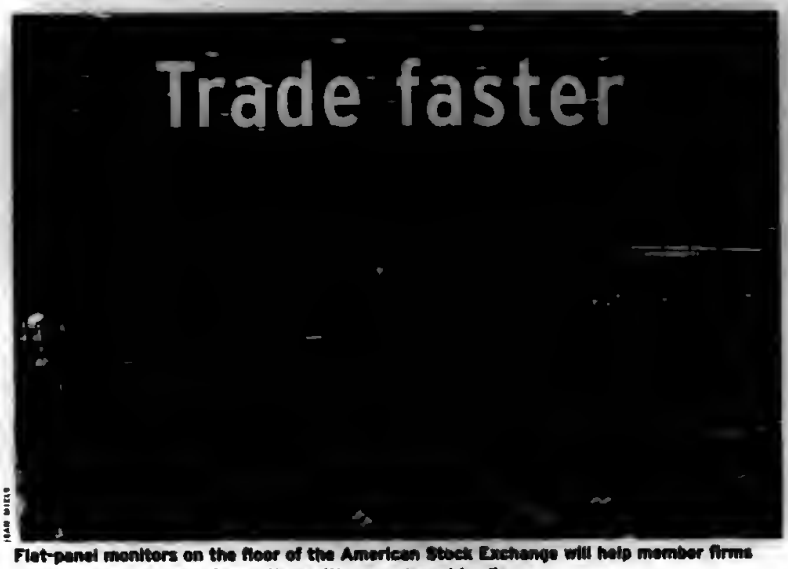
Estimated total spending from 1997 to 2002: $280 billion



1% Africa/ Middle East

2% South and Latin America

Source: Kitten & Associates, Palo Alto, Calif.



JEAN MIELE

Flat-panel monitors on the floor of the American Stock Exchange will help member firms trade options 25 times faster than with paper-based trading

Trade faster

▸ *Amex bullish on computerized options order system*

By Thomas Hoffman

TIME IS MONEY on Wall Street, so it's hardly surprising that a new computerized stock option order system that's helping traders make more of their minutes on the American Stock Exchange (Amex) floor is being heartily received.

Flat-panel displays, from vendor PixelVision Technology, Inc. in Acton, Mass., support the new trading process called the Amex Option Display Book system. The system's flat-panel display, "frees my hands from updating [options positions] so I can do my job faster — it's spectacular," said Sol Reischer, a specialist at G.H.M. Corp., an Amex trading firm in New York.

The 65 PixelVision screens that Amex began rolling out in June are helping specialists such as Reischer execute stock option orders 25 times faster than they could with paper-based trades, said Mack Cunningham, managing director of market operations at Amex.

Amex is believed to be the first options exchange to deploy a computerized system for placing stock option orders.

The X Window System-based monitors, which cost Amex $750,000, were chosen primarily for their reliability and ergonomics, Cunningham said. The exchange floor was expanded to 60,000 sq. ft. in 1988.

Amex traders, page 41

Former airman flies to Wall Street

By Thomas Hoffman

THERE'S NOT MUCH difference between the kind of work Mark Lewis did for the U.S. Air Force and what he does now for the New York Stock Exchange.

In April, following a 20-year military career, Lewis joined the exchange's data processing arm — the Securities Industry Automation Corp. (SIAC) — as senior vice president of software implementation process improvement.

SOFTWARE DEVELOPMENT

The Big Board hopes Lewis can generate the same kinds of stellar results he achieved at Scott Air Force Base in Belleville, Ill. Just before leaving active duty, Lewis led an effort to cut nearly one-third of the predicted development time for a fourth-generation language-based aircraft command and control system for the Air Force.

Shortening software development times is "the same whether you're working with shrink-wrapped software like Microsoft, developing software for the government or doing work for the private sector," Lewis said. He said he hopes to steer process improvements that will help SIAC's 1,300-person crew reduce its overtime hours and work fewer weekends.

Those reductions can be achieved, in part, by inspecting software requirements and designs early in the development cycle. That will keep potential errors from sneaking into the testing phase, Lewis said.

DAVID RYAN

SIAC's Mark Lewis spearheaded a software improvement plan for the Air Force that cut nearly one-third of development time

Airman, page 41

Lilly looks to tighten outsource circle

By Jaikumar Vijayan

PHARMACEUTICALS GIANT Eli Lilly and Co. hopes to save $4 million annually by cutting the number of integration and outsourcing vendors serving the company from more than 80 to just nine.

The move is part of a larger effort by the $7.4 billion Indianapolis company to trim as much as $230 million annually from its overall operating costs.

"We are looking at virtually everything we buy, from chemicals and raw materials to transportation and service," said Fritz Frommeyer, a spokesman for the company. "If we can save $230 million a year, that's almost the cost of developing a new drug."

Most contracts and purchases will now be handled by nine "preferred" vendors.

Such moves are becoming common as corporations try to rein in outsourcing costs and better manage their vendor relationships, analysts said.

"There are a lot of customers looking at doing exactly the same thing," as the number of outside contractors they deal with gets unwieldy, said Howard Lackow, an analyst at Technology and Business Integrators in Woodcliff Lake, N.J.

"What companies are saying is, we will get a better deal if we negotiate with a small number of approved vendors," he said. "They can always go outside this list if projects come up that can't be handled by the approved vendors."

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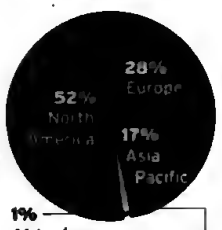


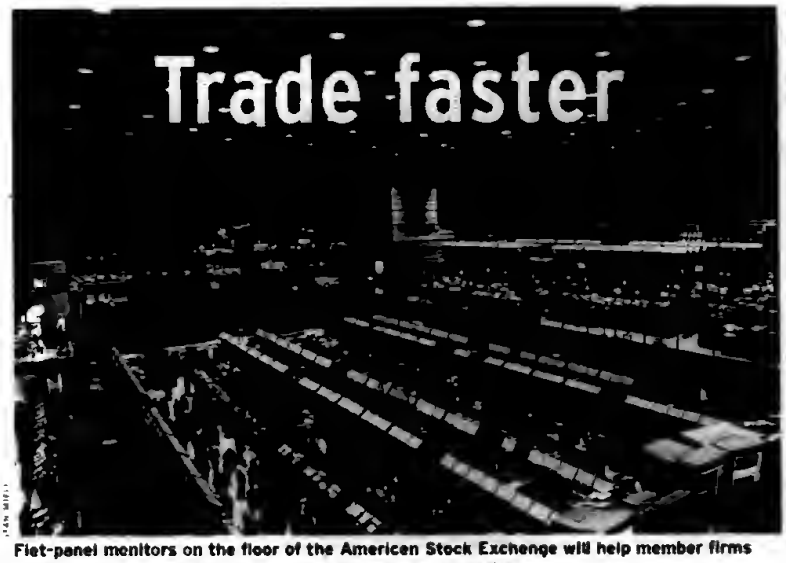
Source: Kitten & Associates, Palo Alto, Calif.

Year 2000 course

The University of California Extension at Santa Cruz has teamed with Senior Staff 2000, a professional staffing firm in San Jose, Calif., to launch an introductory course on year 2000 compliance. The course, to be given Sept. 6 at the University of California Extension in Cupertino, was designed to familiarize programmers with compliance issues surrounding programs written in Cobol and Assembler languages.

Asian banks mull ties

As regional currencies stave off attacks by speculators and fight to remain stable, Asia-Pacific's central banks are considering improving relations and establishing interagency electronic communications, including secure E-mail systems. Eleven of the region's monetary regulators from nations such as Australia, Hong Kong and the Philippines agreed to explore the idea of closer ties. Talks about electronic communications, which may require high levels of security, are at "very preliminary" stages, said a spokesman for the Hong Kong Monetary Authority.



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Passengers get news fresh off train press

By Margret Johnston
MUNICH

THE GERMAN RAIL SYSTEM is using technology to add another timely aspect to its already infamously punctual train service.

The rail system, Deutsche Bahn AG, in conjunction with the German weekly newspaper *Der Spiegel*, last month began publishing a newspaper on high-speed trains, giving their passengers same-day coverage of politics, sports, weather, business and culture.

The four-page, tabloid-size newspaper is printed on the train and distributed to passengers in the first-class compartment free of charge, said Hans-Dieter Degler, editor in chief of the paper, called *ICE-Press*.

Degler said about 12 *Der Spiegel* journalists, graphic artists and photographers complete their assignments by 3:30 p.m. The pages are then sent to a server in Heidelberg, Germany, in Adobe Systems, Inc. Acrobat software in Portable Document Format (PDF).

Degler said PDF thus far has satisfied the printing process, which entails text and black-and-white photographs, and helped to make the first phase of the project a success.

The ads, which use full and spot color, are printed on pages that are delivered to the trains in advance, Degler said. The news feed printing process starts when a Unisys Corp. PC on the train automatically calls the Heidelberg server at 4 p.m. every weekday, and the PDF pages are transmitted to the train over a GSM wireless technology signal.

Werner Schollenberger, an IBM engineer who participated in the project, said another key to making the newspaper a success was ensuring that the pages could be printed by 4 p.m. every day regardless of where the train was.

IBM developed a system, TravelCom, which halts transmission if the train is in a tunnel or train station and starts it again after the train is in the clear, Schollenberger said.

The newspaper is distributed on about half of Deutsche Bahn's 80 high-speed trains, a spokesman said. Plans call for the newspaper to be printed on all the high-speed trains by year's end. □

Johnston writes for the IDG News Service in Munich.

Amex traders get more speed from computerized order system

CONTINUED FROM PAGE 39

but the trading pits are getting more congested as the long-running bull market has fueled a 30% jump in options trading this year alone.

"We're in a physically confined space, so we have to fit our growth into our existing building," Cunningham said.

Amex will add 20 more high-resolution LCDs by the end of September.

For podium-bound options specialists such as Reischer who need to keep one eye on the trading floor while tracking options prices on their screens, the new flat-panel displays are "like driving a car and looking on top of your steering wheel at the road ahead of you," Cunningham said. Plus, the flat-panel displays take up 90% less space than the bulky CRT monitors they replaced.

Previously, when options specialists relied on paper-based trading, it took between two and three minutes to execute and confirm orders. Using the PixelVision screens, an options specialist can poke two icons on his touch-screen monitor and have an order executed and confirmed electronically in five to 10 seconds, Cunningham said.

Amex plans to add 20 more high-resolution LCDs by the end of September, he said. The X terminals are linked to the Securities Industry Automation Corp.'s (SIAC) data center in Brooklyn, N.Y., over a TCP/IP network. SIAC processes options orders for Amex using Digital Equipment Corp. Alpha servers (see story, page 39).

Amex's order-execution system is "a step in the right direction" toward fully automating the exchange, said Octavio Marenzi, research director at Meridien Research, Inc., a financial services and technology consultancy in Needham, Mass.

But Marenzi warned that Amex has merely taken "a sideways step towards building a fully automated exchange." Computerization has eliminated the need for a trading floor at other exchanges such as the London Stock Exchange and the Swiss Exchange, he said [CW, April 7]. □

Former airman flies to Wall Street

CONTINUED FROM PAGE 39

Lewis next month will bring in a third-party outfit to retrain SIAC programmers on writing process documentation and procedures.

"The more understandable we can make this information, the more useful it will be for presentation," he said.

Of course, one big difference Lewis has found between the Air Force and New York-based SIAC is the scenery. "The biggest difference for me is that I'm now working in New York City," whereas before "there was nothing but cornfields around the base," he said. □

Cook expands online services

By Kristi Essick

FINANCIAL AND travel services company Thomas Cook Group Ltd. plans to launch an Internet-based travel booking service.

A spokeswoman for Thomas Cook, based in London, said the company will begin offering Internet-based booking services next month but wouldn't comment on what the services would entail.

The company, which operates foreign currency exchange shops, sells travelers checks and books travel arrangements, will update its World Wide Web site to offer travel booking and currency exchange services next month, according to a recent report in the *Financial Times of London*.

Thomas Cook's Web site (*www.thomascook.com*) already receives 50,000 hits per day, but it doesn't include any online booking services, the spokeswoman said. Users can perform currency exchange calculations, obtain information about Thomas Cook services and find out how to contact the company by phone, she said.

The new online travel and exchange services will let users book flights and hotel accommodations directly and order amounts of foreign currency using a credit card, according to the report.

Several other online travel booking services already exist on the Internet, including *www.travelocity.com*, owned by Sabre Group Holdings, Inc. in Fort Worth, Texas. But the Thomas Cook site will be one of the first to offer travel bookings internationally, where many of the current reservation sites take bookings only for flights originating in the U.S. □

Essick writes for the IDG News Service in London.

Eli Lilly pares outsourcing list

CONTINUED FROM PAGE 39

challenging," said Lisa Maio Ross, an analyst at International Data Corp. in Framingham, Mass.

In Lilly's case, the recent move will help the company streamline billing and payment procedures, thereby cutting administrative costs.

By having standard procedures in place, the company hopes to eliminate the costs associated with managing multiple billing and pricing practices.

And reducing the number of vendors competing for information systems bids from Lilly means that each of the vendors will be able to bid for a larger portion of the overall IS pie. That will result in better prices, analysts said.

CERTAIN VENDORS

The new Strategic Sourcing Initiative, which was implemented in June, means most purchases and contracts will now be handled by a list of nine "preferred" vendors. The vendors were chosen based on the range and types of services offered, the support infrastructure and staff available to the vendor, availability of specialized skills and even their status as a minority-owned business.

Eli Lilly and Co.
Indianapolis

- **What it accomplished:** Reduced number of IT vendors serving the company from 80 to 9.
- **Why:** To better manage outsourcing relationships and cut costs.
- **How much it hopes to save:** $40 million annually.
- **Where the savings will come from:** Lower administration costs, better billing practices and more competitive pricing from vendors.

The list includes integration companies such as Analysts International Corp. in Minneapolis, Computer Task Group (CTG) in Indianapolis, Software Synergy, Inc. in Fishers, Ind., and Volt Services Group in Orange, Calif.

Previously, individual departments and hiring managers could select any qualified company and decide on prices for new contracts and projects.

Under the new scheme, any proposals would first be put up for bidding among the nine vendors.

"By going through this program, it gives [vendors] like us a broader exposure within the company," said Bill Monachino, an account executive at CTG. The company's services for Lilly include application development, database and desktop support. □

We don't know what Freud would say on the matter of NIC-induced anxiety. However, should you find yourself in a similar state of concern, we'd like to suggest the Compaq Netelligent family of NICs.

After all, no matter what environment you oversee — Fast Ethernet, Ethernet, Token Ring or FDDI — there's a Netelligent NIC with industry-leading features and price:performance that's perfectly suited for your network. Which explains why over 40% of all installed servers rely on Compaq NICs.

The fact is, no one knows NICs better than Compaq. For instance, our products work with every major bus type, so your own variety is guaranteed support. And because they've been thoroughly tested for compatibility on every popular open platform, all deliver ease of integration and high performance. Finally, each offering reflects the very latest advances. Like Adaptive Performance Optimization in our Fast Ethernet NICs, redundant server support in our FDDI NICs, and Scalable Clock Architecture in our Token Ring NICs.

All things considered, you won't find a more comprehensive and innovative group of NICs. And if that doesn't ease your mind, you may need some more serious help. To learn more, visit us at www.compaq.com or call 1-800-544-5255. Pleasant dreams.

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COMPAQ

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The Internet

Electronic Commerce • The World Wide Web • Intranets

Briefs

WEB USERS

28 million

50 million*

71 million*

97 million*

Directory secures intranet

National Semiconductor's Glenn Newell: "There's no limit to the type of data you could store in this thing"

▸*National Semi adopts LDAP as standard*

By Carol Sliwa

INTRANETS SPRANG UP in pockets at National Semiconductor Corp., a department here, a department there. But those making the spending decisions weren't exactly throwing their support behind the projects in those early days.

"Support is too strong a word," said William Corley, a principal engineer in the company's intranet technology department. "They condoned us using the resources that were available to us to go ahead and do this."

But as the technology started to catch on, the demand for applications grew. Keeping information secure from the outside world became a top priority. So the natural next step was putting in the infrastructure that would let the company share information securely behind its firewall, across many countries, engineers said.

National Semiconductor, in Santa Clara, Calif., had wrestled with the issue of wanting its users to be able to sign on just once to gain access to its many intranet servers. With more than 300 web servers, users had to have a password and ID created for them for each local server that contained secure documents they wanted to access.

That meant there had to be an administrator for each web server to generate those user identifications and passwords.

National Semi, page 48

Online customers are always right

▸*Conference addresses Web site business focus*

By Mitch Wagner
BOSTON

IT IS EASY to be successful online if you can remember that a World Wide Web site isn't there for corporate convenience — it's there to serve customers.

"The key thing to helping our customers is time," said Phil Gibson, director of interactive marketing at National Semiconductor Corp. in Santa Clara, Calif., who spoke at the Customers.Com conference. "This is a business site, it's not a consumer site. Get them on, then off. Help them with their productivity. That's how to build customer loyalty."

MAKE THINGS EASY

That point was echoed repeatedly by many of the online business executives who spoke at the conference held here Aug. 15. Sponsored by Patricia Seybold Group in Boston, the one-day event featured a lineup of executives talking about their online success stories. The executive speakers discussed how to make things easy for customers, respond quickly to customer complaints and suggestions, and create a personal relationship with online customers and not just be a faceless Web site.

In the case of National Semiconductor, it has tried to carry out its own advice by spending significant effort in tailoring the site for ease of use. The chip maker runs a site on the Web devoted to informing electronics engineers about the company's component products and helping them to try and then buy the components.

For example, National Semiconductor has made it possible for customers to find the information they need with just a few mouse clicks. Customers sign on to the home page, click on the search site, then go to the appropriate page to download information or buy the equipment they need.

Getting into the customer's head also can pay off in goodwill inside the company, Gibson said. National Semiconductor tracks which areas of its Web site are most popular. It also keeps statistics on what products customers download information about, because downloads are very time-consuming and therefore indicative of a high level of interest. And it

Customers, page 48

Internet businesspeople at the Customers.Com conference in Boston Aug. 15, spoke about the importance of keeping an eye on your competitors, security, listening to your customers and the value of good customer service.

"Our customers are very demanding and opinionated folks. They're doing Web sites themselves, and they're quick to tell us what they like and don't like."
— William Heston, PhotoDisc

"We back up to other banks on the Internet all the time. Then we E-mail them and tell them how we did it, because if one bank goes down, we all go down."
— Eric Hertz, president, Security First National Bank

"Customer service should be proactive, but in most businesses, it's a four-letter word."
— Tung T. Pham, Tripod

Briefs

WEB USERS

1996	28 million
1997	50 million*
1998	71 million*
1999	97 million*

*Projected

Source: International Data Corp., Framingham, Mass.

Explorer 4.0 to ship

The final version of Microsoft Corp.'s Internet Explorer 4.0 browser will be released Sept. 30. Microsoft officials said users can avoid the expected download rush by ordering it on CD-ROM in advance for $4.95. Details are available at the Explorer Web site at *www.microsoft.com/ie/*. The company said the charge covers only shipping and handling; the browser is free. The CD-ROM, which will be mailed out on the release date, also will include several promotional offers from content providers.

Managing keys

KeyGen Corp. in Lexington, Mass., claims to have developed technology that eliminates the complex problem of encryption key management. "After the one and only time in history a link is initiated, both sides will just know, forever, what the keys are, no matter how often they change," said President Myron Lewis. The ASK ToolKit works with e number of encryption algorithms, according to the company.

ActiveX controls

Attachmate Corp. in Bellevue, Wash., last week announced availability of e version of its Windows-based mainframe client with ActiveX controls. Extra Personal Client 6.3 ships with Extra Objects controls, which were designed to help developers access mainframe data in their object-oriented applications. Attachmate includes a developer's kit with a programmable interface to the ActiveX controls. The product delivers host-based information to Windows desktops over any network. It costs $425.

Directory secures intranet

National Semiconductor's Glann Nawell: "Thara'e no limit to the type of dete you could etore in thie thing"

▸*National Semi adopts LDAP as standard*

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1997 VALENTE PHOTOS

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Fidelity posts 'net services

By Johanna Ambrosio
BOSTON

BROKERAGE HOUSE Fidelity Investments is using the twin carrots of deep discounts and customized services to entice more customers onto the Web.

Doing business on the Internet is "orders of magnitude" less expensive compared with providing more traditional services such as toll-free telephone numbers and customer support representatives, said George G. Hathaway III, vice president of strategic planning for Fidelity's retail group. His division handles individual investors' accounts.

Hathaway, speaking at the recent Internet Expo here, wouldn't provide specific figures about how much money his company expects to save as more customers use the World Wide Web to conduct financial business. Nor does the company necessarily expect to cut back on the number of customer support representatives or branch offices, he said.

ELECTRONIC TRADING

Boston-based Fidelity already makes 14% of its retail revenue from customers who do business on the Internet. The company hopes to double that figure by 2000, Hathaway said.

For the past several months, the company has provided customers who conduct their trades on the Internet "deeper discounts" than customers who use traditional methods, Hathaway said. Further enticements will come over the next six months, when Fidelity will put more educational, planning and tracking tools on its site.

The firm will also give clients access to all of their customized account data, which they can use to plug in to what-if analyses, retirement scenarios and other planning tools to figure out how to change their portfolios.

The site will provide a way to trade in other investment vehicles in addition to the ones Fidelity sells, Hathaway said, and it will use "push" electronic mail to notify customers when it is a prime time to buy or sell stock, for example.

"The Web will revolutionize the way we do business in the financial services industry," Hathaway said. "Customers have 24-hour access, instant gratification — and control is entirely in their hands."

Gary Rowe, a principal at Rapport Communication, a consultancy in Roswell, Ga., called it a "brilliant strategy. They can achieve some real customer loyalty in the early part of this market."

But Fidelity's business model isn't entirely new, Rowe added. Some airlines already provide Web-only bargains to get consumers to use the Internet.

Hathaway said Fidelity is competing against other brokerages, particularly Charles Schwab & Co., in providing roll-your-own financial planning tools to the middle tier of investors.

But he also said not many other companies are going after that part of the market. Some of the higher-end houses, including Merrill Lynch & Co., don't let customers conduct electronic trades on their sites, Hathaway said, preferring instead that their brokers execute the trades. □

Document access

▶ *Web-based management tool gets users up and running fast*

By Barb Cole-Gomolski

INDEX CARDS may work for most of us, but researchers at Dreyer's Grand Ice Cream, Inc., are turning to a Web-based document management system to keep track of their prized recipes.

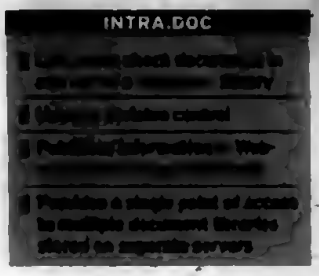
The Union City, Calif., company predicts that the system will let it release new flavors faster and ensure that all plants are mixing the same proportions of chocolate chips in its Cookie Dough ice cream.

"It will give our formulators access to documents from a [World Wide] Web browser that are currently not very accessible," said Jim Azevedo, a systems developer at Dreyer's. The documents now are stored in multiple applications, and not all users have access to those applications from their desktops.

Dreyer's is deploying Minneapolis-based Intranet Solutions, Inc.'s Intra.doc Management System, document management software for intranets that shipped earlier this month.

Intra.doc is aimed at medium-size businesses and departments that want to get a Web-based document system up and running fast, company officials said. The software will provide a central point for Dreyer's researchers to access and update information stored in Microsoft Corp. Word, SQL databases and DOS-based applications.

Azevedo said price was the key to his selection of a product because the software was being purchased with department funds and will be deployed to about 50 workers. The Windows NT-based software costs $17,995 per server and includes unlimited client access for viewing documents. Higher-end document



management offerings often cost hundreds of thousands of dollars but come with specialized client software and were designed to support thousands of users.

Connie Moore, vice president at Giga Information Group in Cambridge, Mass., said there is strong demand for such low-end document software, and this is a void that major software companies — such as IBM and Microsoft — are looking to fill. "The really big guys will play here," Moore said. Indeed, Lotus Development Corp. recently released Domino.Doc, a document management add-on for Domino servers. □

The Internet breathes new life in to document management systems.
Page 71

NEW PRODUCTS

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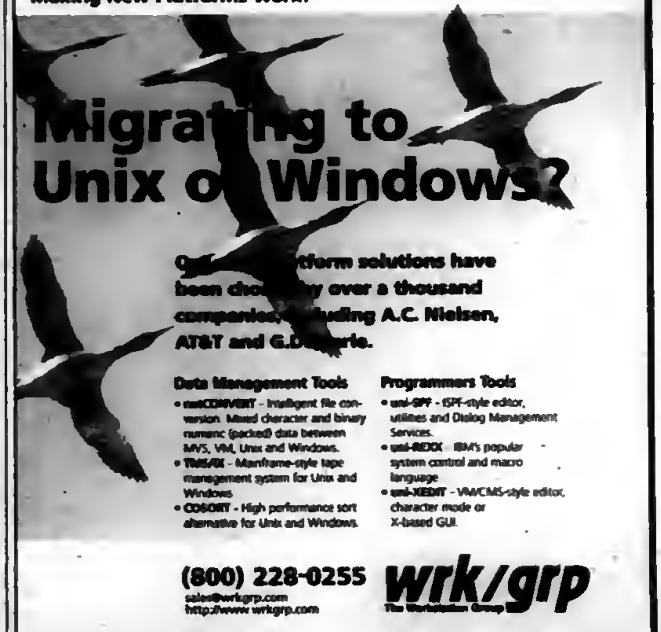
Making New Platforms Work!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• TMS/IX - Mainframe-style tape management system for Unix and Windows
• COSORT - High performance sort alternative for Unix and Windows.
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INTRA.DOC

- Lets users check documents in and out of a document library
- Handles revision control
- Publishes information in Web-ready formats automatically
- Provides a single point of access to multiple document libraries stored on separate servers

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The Internet breathes new life in to document management systems.
Page 71

NEW PRODUCTS

TATUNG SCIENCE & TECHNOLOGY, INC. has announced the COMPstation U2300i and COMPstation U1300i, 64-bit World Wide Web servers that use 300-MHz UltraSPARC II processors from SPARC International, Inc.

According to the Milpitas, Calif., company, the U2300i server has two 300-MHz processors, and the U1300i has one 300-MHz chip. Both servers can support up to 18G bytes of drive capacity and have four-drive bays for storage expansion peripherals. Each comes preinstalled with SunSoft, Inc.'s Internet Gateway Server 2.0 and Solaris 2.5.1.

Pricing for the U2300i starts at $28,910 and starts at $19,590 for the U1300i.

Tatung Science & Technology
(800) 659-3902
www.tsti.com

QUERISOFT, INC. has announced SecureFile 1.0, a desktop and Internet security application that runs on Windows NT.

According to the Atlanta company, the software was built on Microsoft Corp.'s Crypto application program interface. Users can encrypt or digitally sign documents by dragging and dropping them on the program's SecureFolder icon created on the desktop. Documents can be secured for more users and exchanged over the Internet using any electronic-mail client.

SecureFile 1.0 costs $49.95.

Querisoft
(404) 812-6872
www.querisoft.com

CUBIC VIDEOCOMM, INC. has announced CVideo-Mail, a video electronic-mail plug-in for Eudora software.

According to the San Diego company, CVideo-Mail lets users record and send video E-mail. The user can click on an icon in the Eudora system to launch the program. File management options let users store, save to disk or delete video E-mail messages. CVideo-Mail is compatible with many popular desktop cameras and camcorders.

CVideo-Mail costs $200.

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Easier Web replication

By Carol Sliwa

MOAITA USSRS will be able to replicate Web-based collaborative applications and data to their laptops with the new version of Radnet, Inc.'s WebShare software released earlier this month.

The software lets workers choose information on the network that they need to work with while off-line. When they are finished, they can reconnect to the system and replicate to the network application server the work they have done while disconnected.

Besides receiving data, mobile users can get updated versions of applications replicated to them using the WebShare Mobile 2.1 software.

They simply need the WebShare Mobile software and a World Wide Web browser running on their laptops, so they can point to the WebShare Server.

WebShare Mobile 2.1, which includes a copy of WebShare Server for Microsoft Corp.'s Windows NT Server, costs $3,995. Bought separately to add to existing WebShare Servers, the mobile option costs $1,295. The product supports clients running Windows 95 and Windows NT 3.51 or higher.

WebShare Server cost $2,995, and the WebShare Designer tool for building applications costs $995.

Headed by former Lotus Development Corp. employees, the Cambridge, Mass.-based Radnet produces products that compete directly with Notes. □

NEW PRODUCTS

ASTOUND, INC. has announced WebCast Professional, an enterprise version of the company's channel-authoring tool for "push" technologies.

According to the Palo Alto, Calif., company, designers can use WYSIWYG multimedia and dynamic Hypertext Markup Language to create broadcast channels that play on Netscape Communications Corp.'s Communicator and Microsoft Corp.'s Internet Explorer 4.0 without proprietary clients. The product supports most middleware tools to let it extract information from a corporate database, so users aren't limited to World Wide Web-based channel content.

WebCast Professional costs $895.

Astound
(415) 845-6200
www.astound.com

INTRANETICS, INC. has announced IntraNetics 97, a package for small- to medium-size businesses with software to deploy an intranet.

According to the Woburn, Mass., company, the package includes Web server software, browser licenses, a database and a mail server. IntraNetics ships with 17 integrated business applications to help users organize information such as internal job listings, expense reports and departmental calendars on the company intranet.

IntraNetics 97 costs $4,995. Versions with server software that is compatible with browsers from Netscape Communications Corp. and Microsoft Corp. cost $7,495.

IntraNetics
(617) 932-0960
www.intranetics.com

MICROVISION DEVELOPMENT has announced WebExpress 2.0, a Web page authoring tool for Windows 3.x, Windows 95 and Windows NT.

According to the Carlsbad, Calif., company, the design and editing software lets users view work in progress by launching the current page into a browser from within WebExpress. Users can configure two different browsers for launching and proofing of pages before they are published on the World Wide Web. Using the version's new Web Site Manager features, Web designers can visually manage links and navigate through a site's hierarchy.

A single-user license costs $69.95.

MicroVision Development
(760) 438-0305
www.mvd.com

National Semi adopts LDAP

CONTINUED FROM PAGE 43

"With 300 web servers, it's an awful lot of resources being wasted," Corley said.

So, the departments driving the intranet projects finally persuaded the decision-makers in corporate information systems management to solve the problem by standardizing on the directory, certificate and Enterprise web servers from Netscape Communications Corp.

Some departments lobbied IS management using published reports that showed returns on investment for other companies, but they planned no formal study. The need for security and single sign-on for the intranet were enough to convince corporate IS managers.

INTRANET SECURITY

"It would take me a year, and I wouldn't know anything more than I know now," said Glenn Newell, senior engineering manager in National Semiconductor's intranet technology department. "Intuitively, it's obvious it's going to save me money."

Newell said resistance issues may crop up. Managers who set up web servers from Microsoft Corp., for example, might not be thrilled to learn they have to use Netscape's Enterprise server for secure documents.

"People are resistant to any kind of standard that they don't feel like they got to bless off," Newell said.

Based on the emerging Lightweight Directory Access Protocol (LDAP), Netscape's directory structure lets the company create a central mechanism for authenticating users companywide.

The directory server stores employee information, such as the department they work in, management level, address and telephone number. And the LDAP provides a standards-based way to access and manage that information.

Administrators can assign users access rights and privileges based on whatever they decide — job title or seniority level, for example.

"I think we're just scratching the surface of the things that we'll use it for in the future," Corley said. "I don't even think we know what we'll use it for."

One potential use is a "meta directory" that can link the directories of the company's servers running Novell, Inc.'s NetWare, Unix, Microsoft's Windows NT and Lotus Development Corp.'s Notes. "That could give the corporate IS group a single administration point for all of those services," Newell said.

National Semiconductor is just starting to switch to the new directory structure in the corporate IS department to authenticate users to intranet sites and to give employees access to corporate white page information.

USER ACCESS

But it also is working to convert a project management application to use the LDAP directory server to provide authentication for user access, Corley said.

The company now uses LDAP internally, sending no information through the firewall.

But it may decide to tie employee contact information in to the Internet or make some data available to customers through an extranet, Newell said.

"There's no limits to the type of data that you could store in this thing," Newell said. □

Online customers are right

CONTINUED FROM PAGE 43

tracks which products are purchased online.

Promptly responding to customer suggestions — and complaints — also is very important, said William Heston, vice president of business development at PhotoDisc, Inc., a Seattle company that sells stock photos and other images to companies such as advertising firms and marketers.

PhotoDisc sells images and offers them for download online. It is developing software to track whether a download was completed. But until then, PhotoDisc puts the customer on the honor system — if a customer complains that a download flamed out, PhotoDisc simply takes the customer's word on it and allows another download attempt.

"That results in a lot of satisfied customers, even if it makes our accounting department unhappy," Heston said.

Another approach to building online loyalty is to create a personal touch, said Tung T. Pham, membership director at Tripod, Inc. The company's online magazine targets the so-called Generation X audience and features

National Semiconductor's Phil Gibson: "The key thing to helping our customers is time"

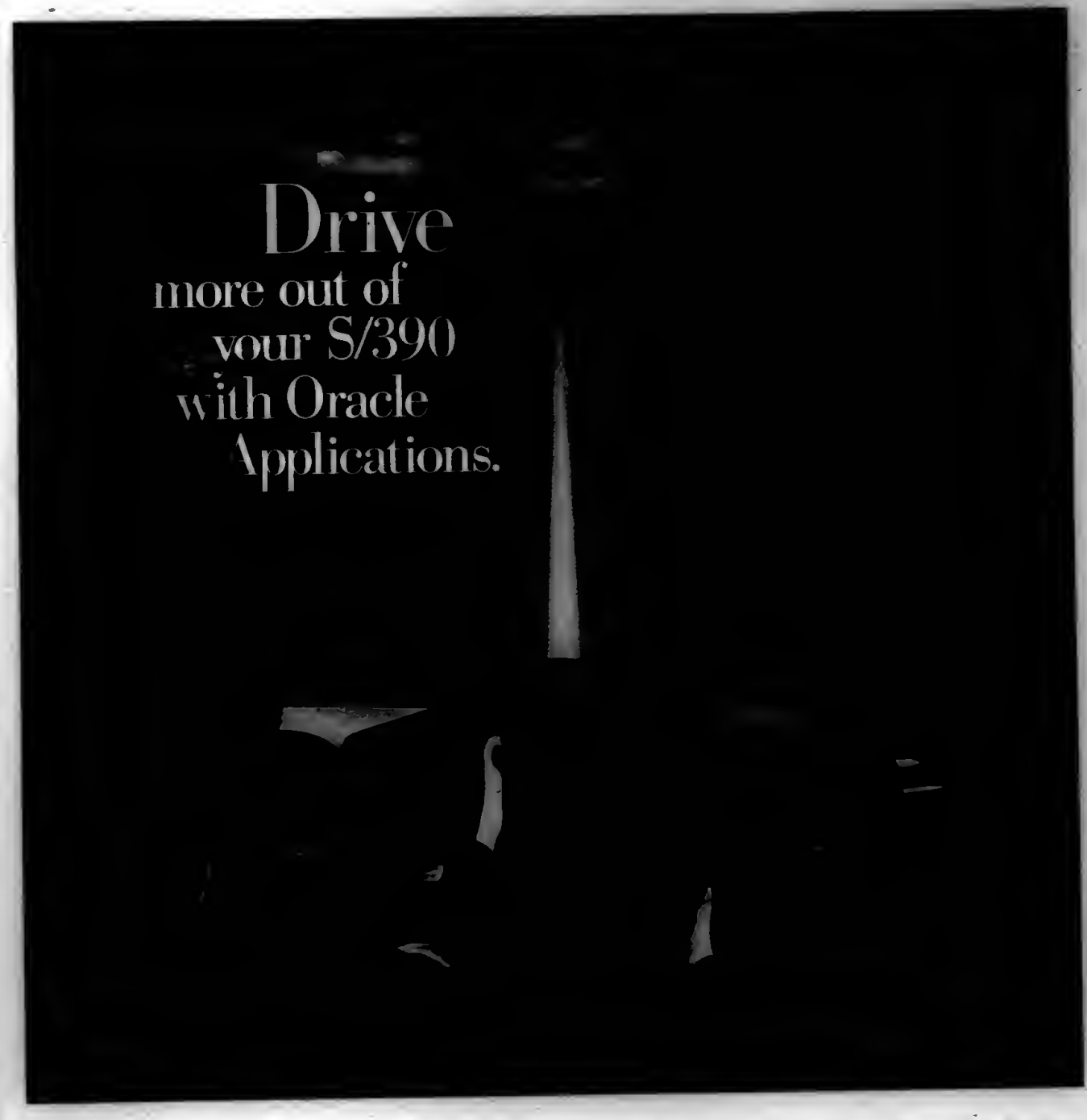
articles, interactive features such as real-time chats and discussion groups with experts, and other discussion groups and Web pages hosted by its 250,000 members.

Tripod applies the personal touch by signing each piece of electronic mail to its customers with a customer representative's name. It distributes online newsletters that even contain tidbits of office gossip, and it consults with customers on every significant decision.

"One of the things that we want people to know is that there are people behind this site running it," Pham said. "Our generation is incredibly media-savvy, and they're distrustful of mass media."

Patricia Seybold, president of Patricia Seybold Group, said putting the customer first on the Web site can have benefits beyond cyberspace.

"It's the most effective way of changing your corporate culture," Seybold said. "You can take the information you get from your customers around and route it through the company and have everyone bathing in it." □



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The Enterprise Network

LANs • WANs • Network Management

Briefs

WORLDWIDE ACCESS CONCENTRATOR MARKET

Access concentrators are devices that take numerous data feeds from LANs and concentrate them in one or two data feeds so users can save on WAN charges

Source: Dell'Oro Group, Portola Valley, Calif.

Utilities adopt Web bill payment plans

Benefits of electronic bill delivery and payment service at utility companies

- Users can monitor accounts from their PCs
- Utilities offer more service options for less money
- Payment process is outsourced to a service provider
- Utilities save money and time
- The number of paper-printed checks is reduced

By Bob Wallace

UTILITIES ARE beginning to adopt World Wide Web-based bill presentation and payment in an effort to streamline the process for customers and reduce their own costs.

That was the strategy behind Northeast Utilities Services Co.'s decision this month to sign on with CheckFree Corp. to provide services to its 1.2 million customers in New England beginning in October.

CUSTOMER-SERVICE STRATEGIES

A week earlier, Florida Power & Light Co. signed with CheckFree to offer the service to its 7 million customers in Florida. CheckFree also has signed up Consumers Energy in Jackson, Mich., and GPU Energy in New Jersey, which represents Jersey Central Power & Light, Metropolitan Edison Co. and Pennsylvania Electric Co.

CheckFree is competing against a joint venture of CyberCash, Inc. and Microsoft Corp. Visa U.S.A., Inc. has also expressed an interest in this area, and National Processing Co. is testing a bill presentation service.

"We've had a lot of customers request this, and there's savings for consumers and utilities," said Pat Mulholland, administrator of payment option at Northeast Utilities. "We didn't want to wait any longer because we were concerned someone else [in our region] would offer it first."

CHECK'S ON THE SCREEN

Paying bills electronically isn't new, but presenting them electronically is, analysts said.

Users are offered full-color electronic bills complete with graphics, logos and complete billing details.

To use the service, a customer must fill out an enrollment form on the CheckFree Web site that will be verified by U.S. mail. Using their own account number and a personal identification number, customers will then be able to quickly access their electric bills. Once the bills are paid, customers can store them electronically for future reference.

One expert said utilities will embrace this process quickly.

Utilities, page 52

Network tool goes beyond the 'net

▸ *Documentation tool lets other managers view data performance*

By Patrick Dryden

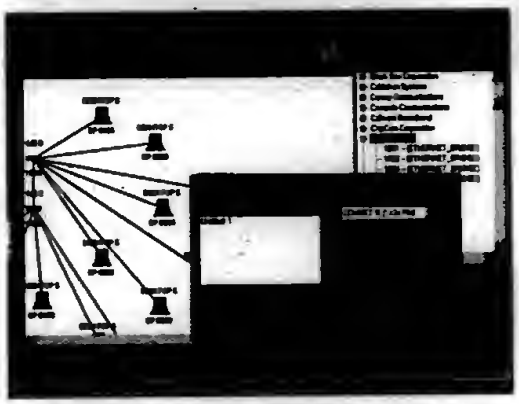
NETWORK DESIGN TOOLS are evolving to help IS managers do more than plan new layouts or draw up-to-date maps of constantly changing connections.

The latest example is from NetSuite Development in Wayland, Mass. Last week the company launched the third generation of its namesake product.

Version 3.0 of NetSuite Professional Design includes the following: a gateway that exports data to performance simulators, help desk systems and other tools; the ability to track functions of cards from specific vendors; and protocols that reveal logical and physical relationships.

Network managers at Temple University in Philadelphia said they plan to use the gateway to share what was considered a private trove of network information with help desk and systems managers.

"We want to make NetSuite a reference tool for troubleshooting," said Mike Taylor, a telecommunications manager at Temple.



NetSuite design tools now include a gateway that can send network configuration data to a performance simulator

BEYOND PAPER

Documenting on paper the layout of a network that grew by hundreds of nodes per week was difficult, Taylor said. And the "generic icons and moving lines" in maps created by network management tools lacked meaning.

NetSuite 3.0 enhances the user's view of connections, networking gear and configuration of desktops and servers by using a computer-aided design interface. It also can log items such as manuals, maintenance contracts and service levels.

NetSuite provides "a way to marry all the information from tools designed for specific purposes," said Suzanne Schneider, a network consultant at Alltel Information Services, Inc.

The Dallas-based service provider uses NetSuite to document

Network tool, page 53

Bay enters Web-to-host gate market

By Tim Ouellette

BAY NETWORKS, INC. recently joined other vendors scrambling to give LAN, intranet and Internet users easier access to mainframe applications and data.

The Santa Clara, Calif., company is prepping the 5745 Enterprise Server Module (ESM), a mainframe channel-attached gateway that can be installed inside Bay's System 5000 switch chassis.

Trying to differentiate itself from other networking vendors in this market niche, Bay partnered with Computer Network Technology Corp. (CNT) in Minneapolis to give end users direct access to mainframe applications through a World Wide Web browser.

CNT's Web-to-mainframe software package and development tool kit will let users get a "green screen" window inside a Web browser and customize that window to turn the green

Bay, page 52

The Enterprise Network

LANs • WANs • Network Management

Briefs

Order ISDN online

BellSouth Corp. in Atlanta last week expanded its interactive applications on its World Wide Web site, www.bellsouth.com. Small businesses and consumers can order online services such as Integrated Services Digital Network connections, price checks for special services and a review of their phone bill. Online bill payment should be available in six months, officials said.

Cisco, HP team up

Cisco Systems, Inc. and Hewlett-Packard Co. last week announced an Ethernet hub they co-developed with software technology from Cisco. The HP 10Base-T Hub has 16 managed ports. It is shipping now through Cisco channels and costs $845. The device can be managed from Cisco's CiscoWorks Windows network management system.

Bay expects big results

Bay Networks, Inc. expects to finish its first fiscal quarter next month above expectations, Bay said last week. The news pushed its stock up 3 1/8 points, to 37 1/8 on the New York Stock Exchange the next day, despite Bay's warning that more than half the revenue is expected to be recorded in the quarter's last six weeks. Bay's stock price has more than doubled in the past six months. The firm recently cut prices on some of its Ethernet network switching products.

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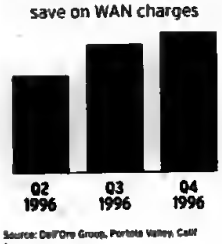

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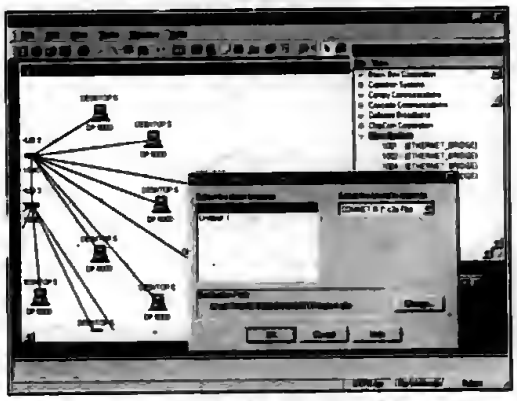

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Bay, page 52

Bay joins Web-to-host crowd

CONTINUED FROM PAGE 51

screen into a normal Hypertext Markup Language interface.

Bay's module also integrates mainframe connectivity inside the switch, so System 5000 users won't have to install or maintain a separate gateway or mainframe controller.

Mainframe gateways are becoming increasingly important. Although many user shops are expanding their TCP/IP networks, they still need to provide end-user access to mainframe-based SNA networks, where most critical data still resides.

"It is important to be able to better manage the access and have fewer points of failure than we have now," said Michael Jordan, manager of technical services at Gibson Greetings, Inc. in Cincinnati. Jordan has one of the new modules on order.

The 5745 ESM includes two redundant boards that plug in to the System 5000. Jordan said he gets mainframe access redundancy in one package at half the cost of managing separate gateway servers.

The module also can send SNA traffic through a TCP/IP network to SNA clients or send TCP/IP traffic through the mainframe and back to a TCP/IP client application.

LATE ENTRANT

Bay is playing catch-up with IBM, Cisco Systems, Inc. and other competitors that already have offerings in this area, analysts said.

"These networking companies used to be content to just sell the connectivity," said Cindy Borovick, an analyst at International Data Corp. in Framingham, Mass. "But now they are stepping up to offer the whole solution, though their success really depends on the relationship with their partner."

The 5745 ESM will ship in November. Pricing will start at $11,995. The price of the Web connectivity software starts at $33 per user. □

Utilities adopt Web billing

CONTINUED FROM PAGE 51

"The floodgates haven't quite opened yet, but if the economics work for the utilities, they'll all want in on this," said Richard LeBardi, a managing partner at Andersen Consulting's utilities practice in Chicago. "Not handling paper billing saves money."

BIG SAVINGS

Utilities and other users of the CheckFree service can expect to save 30% to 60% per year, said a spokesman at CheckFree.

About 20% of Northeast Utilities' customers have access to a PC and modem in their homes, Mulholland said. They also will need a Netscape Communications Corp. Navigator browser and Internet access.

Florida Power & Light officials said they are excited to offer the CheckFree service.

"We want to give our customers as many convenient options as possible when it come to bill paying," said Bill Hamilton, vice president for customer service at the utility.

"[CheckFree] is a great new option for customers who like to use their computers to monitor their accounts and pay bills online," he said.

Consumers Energy, Michigan's largest utility company, sees CheckFree as a winning proposition for its customers and the utility.

"CheckFree helps us offer additional service to our customers, while improving our bottom line," said Doris Galvin, vice president and treasurer in charge of electronic commerce at Consumers Energy. □

Network tool goes beyond the 'net

CONTINUED FROM PAGE 51

each client's network. But its information can assist daily operations tasks, such as supporting help desk callers, reporting assets or generating a bill of materials, she said.

Schneider said she likes the gateway that exports NetSuite's data to a network performance modeling tool, Comnet from CACI Products Co. in La Jolla, Calif. NetSuite said it will offer similar support for other simulators, help desk systems and management tools.

Such enhancements help NetSuite boost its usefulness as the pack of design tool vendors tries to reach managers beyond the network specialists, said Paul Zagaeski, an analyst at Giga Information Group in Cambridge, Mass.

Competitors include Command from Cambio Networks, Inc. in Bellevue, Wash.; and CANE from ImageNet Ltd. in Saratoga, Calif.

"The rush is on to centralize all the information, because not just the technical guys, but the business managers want to see what's out there," Zagaeski said.

NetSuite costs about $5,000 and runs on a hefty Windows-based PC. It can discover the makeup of a 500-node network in about 30 minutes on a LAN or an hour across slower WAN connections.

Users now must refresh the NetSuite database with information that isn't network-related, such as printers and telephone jacks, said Sam McLane, a consultant at KPMG Peat Marwick in Montvale, N.J. But NetSuite has promised to deliver an application programming interface to simplify data exchange.

"Then we can snap NetSuite into an enterprise management framework as the documentation widget," McLane said. □

NEW PRODUCTS

ASANTE TECHNOLOGIES, INC. has announced the addition of three Fast Ethernet hubs to its FriendlyNet line for workgroups and small businesses.

According to the San Jose, Calif., company, the new hubs are available in five-, eight- or 16-port versions. Port auto-partitioning features isolate port failures to keep the network running.

Pricing starts at $50 per port.

Asante
(408) 435-8401
www.asante.com

LANTRONIX has announced the LSW8F, an eight-port switch for workgroups that migrate from 10M bit/sec. Ethernet to Fast Ethernet.

The Irvine, Calif., company said the switch provides 100M bit/sec. performance for every workstation in the workgroup. The LSW8F supports up to 8,192 Ethernet addresses, and each port has its own LED set for indicating link, speed, duplex mode, activity and collisions.

The LSW8F costs $1,595.

Lantronix
(714) 453-3990
www.lantronix.com

KEYSPAN has announced the Keyspan PPP Server, a multiline remote access server for Apple Computer, Inc.'s Power Macintosh.

The Richmond, Calif., company said the server supports dial-in clients via the Point-to-Point Protocol (PPP) at speeds of 115.2K bit/sec. and is compatible with Mac OS, Windows and Unix PPP clients. The server software is bundled with a four-port serial expansion card and offers expansion to six or eight lines with additional Keyspan serial cards.

The Keyspan PPP Server costs $529.

Keyspan
(510) 222-0131
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- **SAP Support and Services**—SAP's ongoing structure of guidance offers availability in many forms, and provides answers to questions that may arise once you've gone live. It's your roadside assistance program, so you always have the security of a friend along the way.

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3. **Realization**
4. **Final Preparation**
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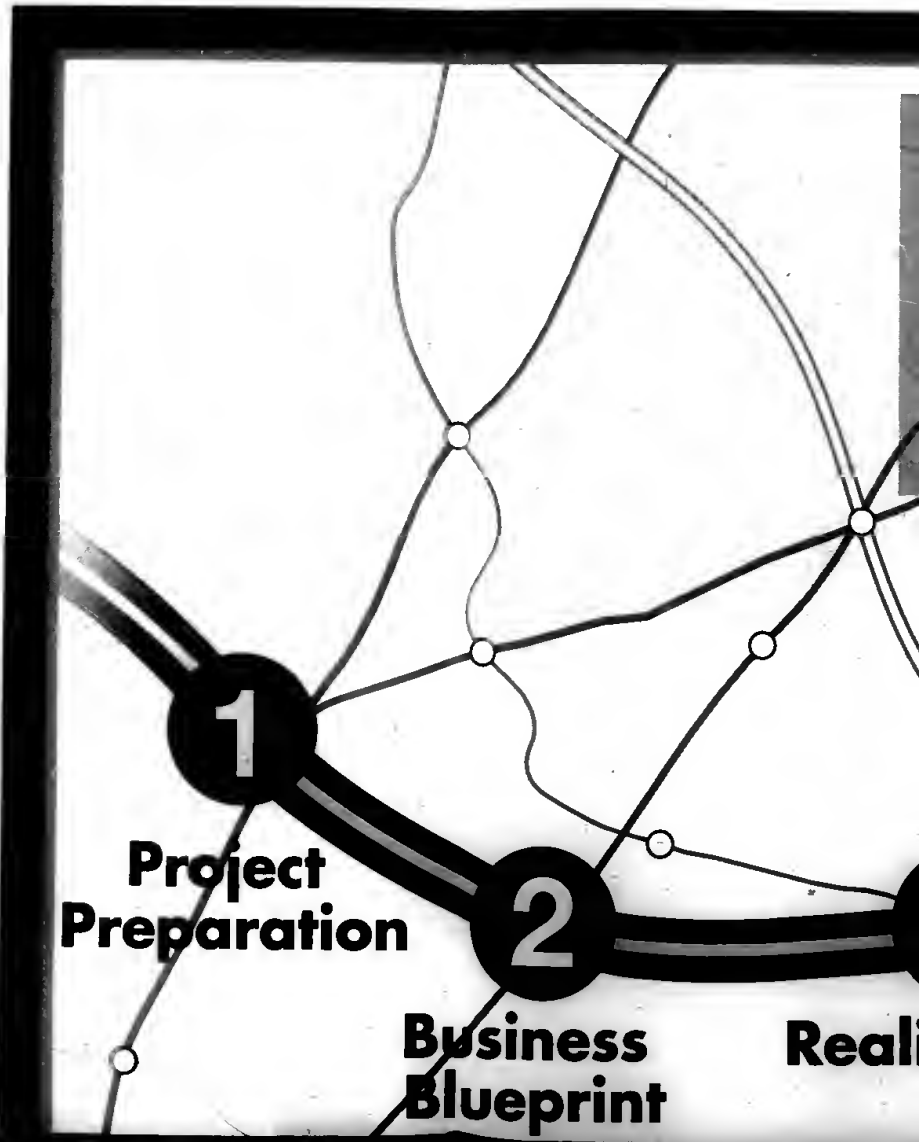

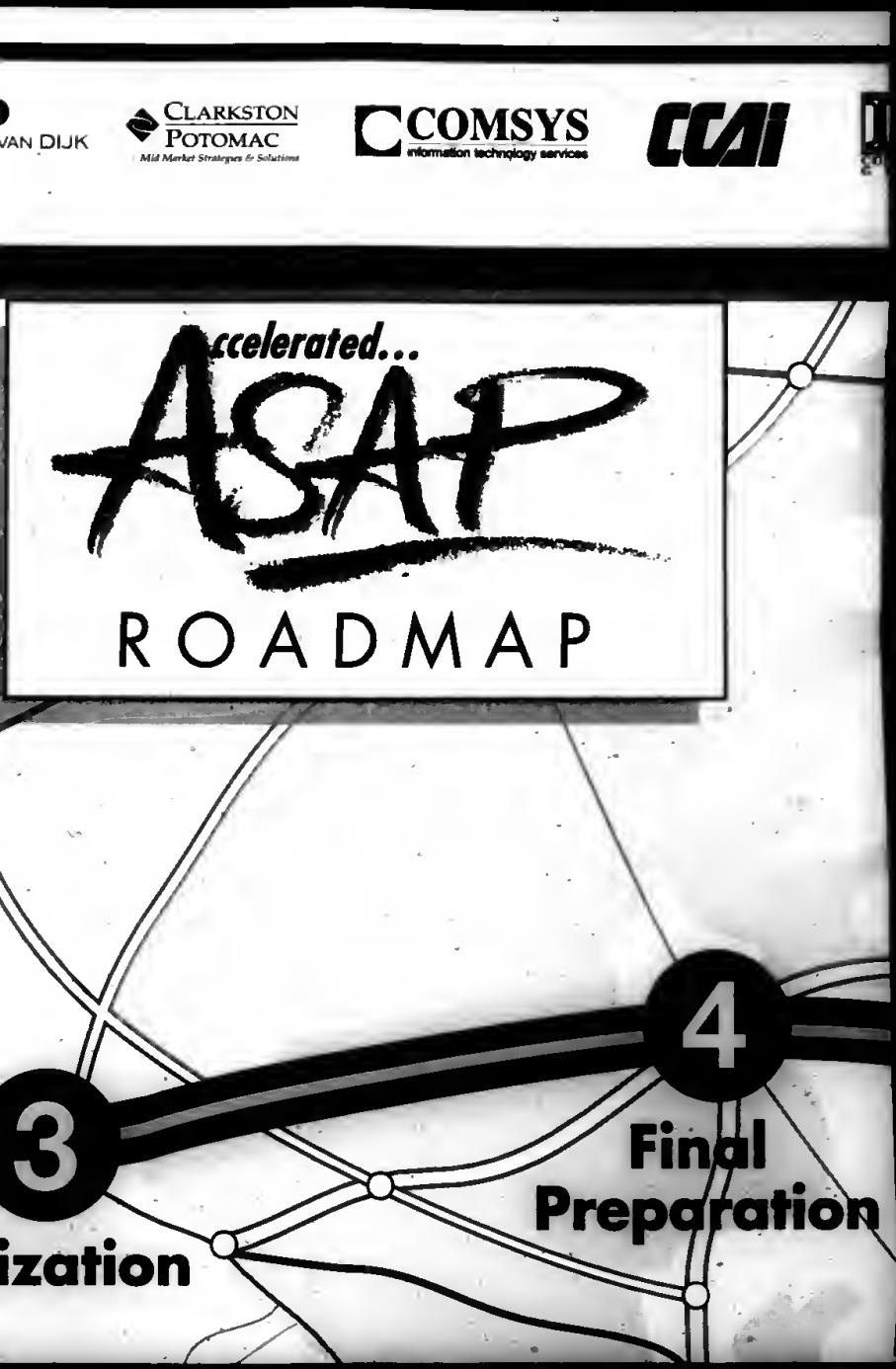
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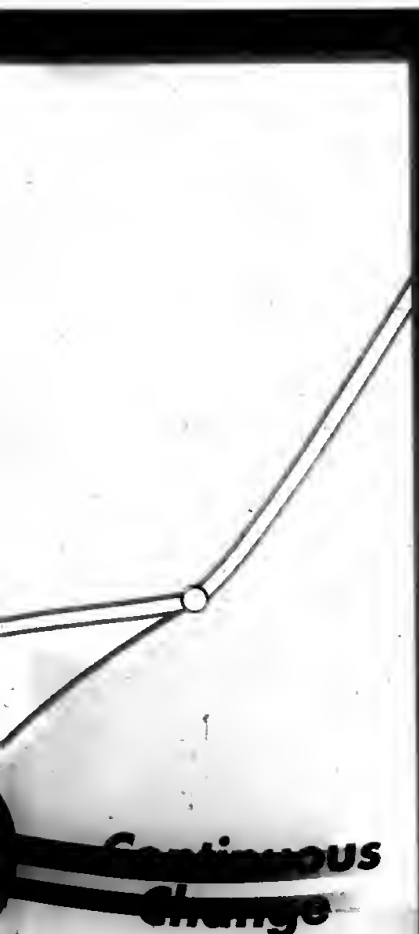

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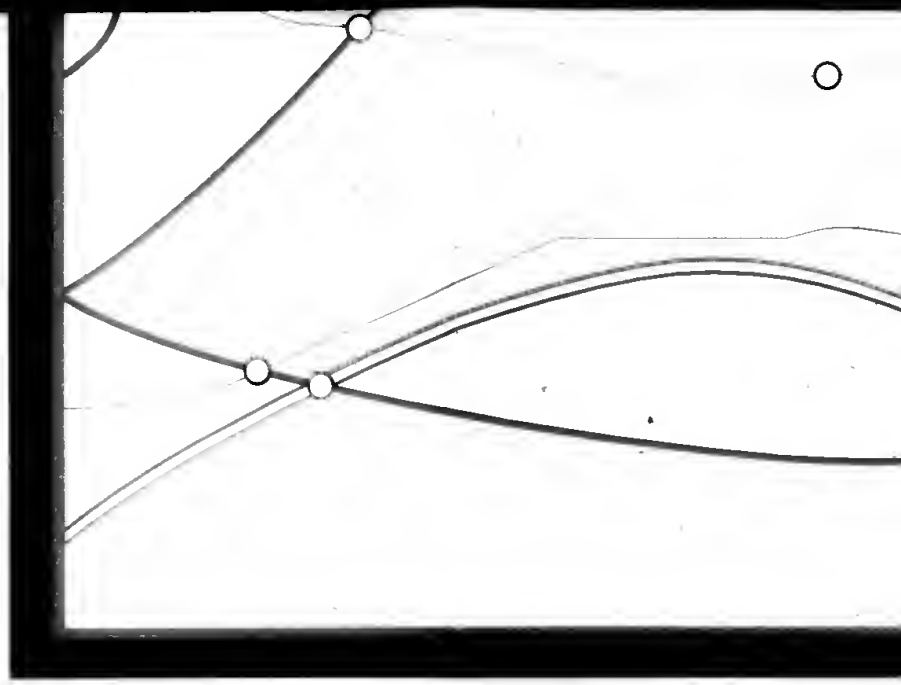

1 Project Preparation

Of course, every successful journey begins with preparation. You'll need to make sure all decision makers are on board for R/3 implementation. Then gather your internal and external implementation team.

2 Business Blueprint

Once you know your company is prepped, you'll want to document your company's business requirements. It's a visual model of your business' future state after you've crossed the R/3 finish line. The Business Blueprint will allow your project team to narrow the scope and only focus on R/3 processes needed to run your business.

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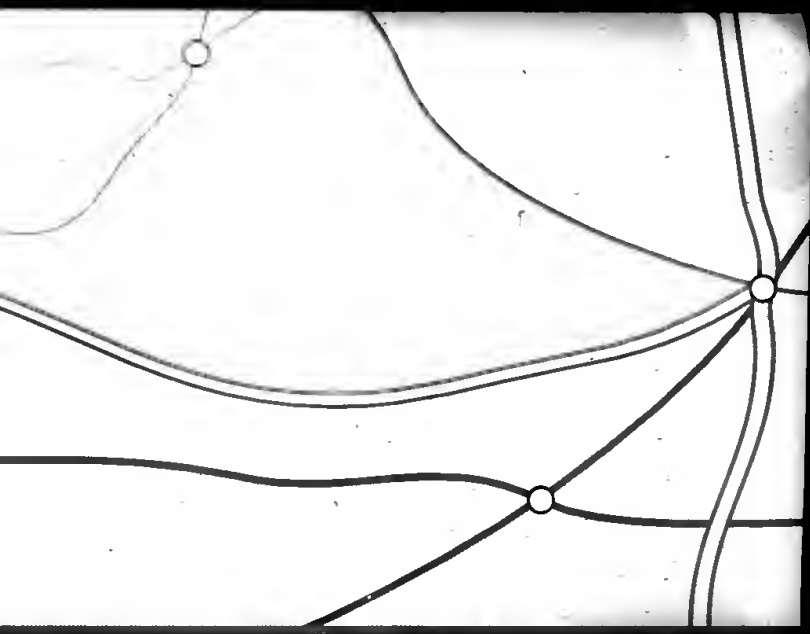

ealization

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ur R/3 system to fit your business.
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e wheel of R/3.

4 Final Preparatio

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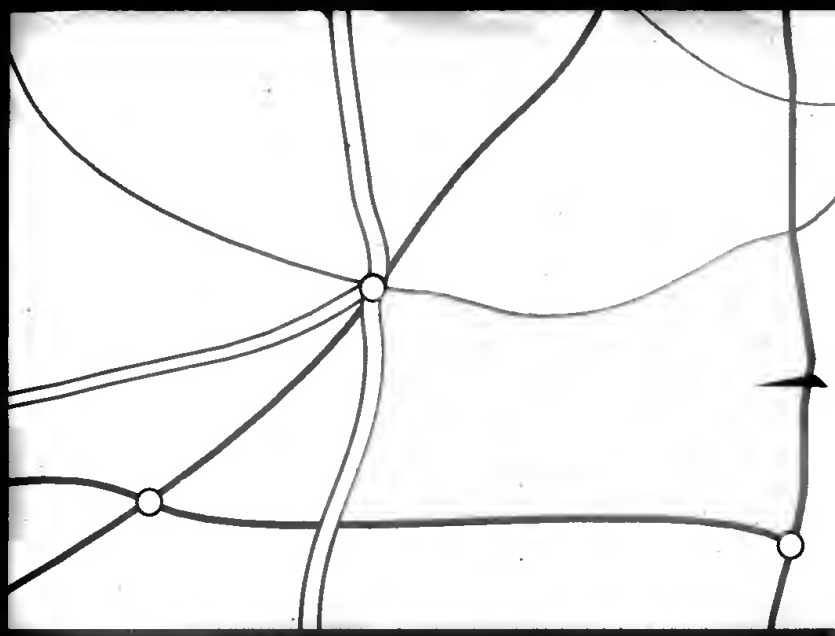

4 Final Preparation

Back under the hood for some testing and adjustments. It's your business' opportunity to test all interfaces, train all end users, and migrate true data to your R/3 system.

5 Go Live and Suppo

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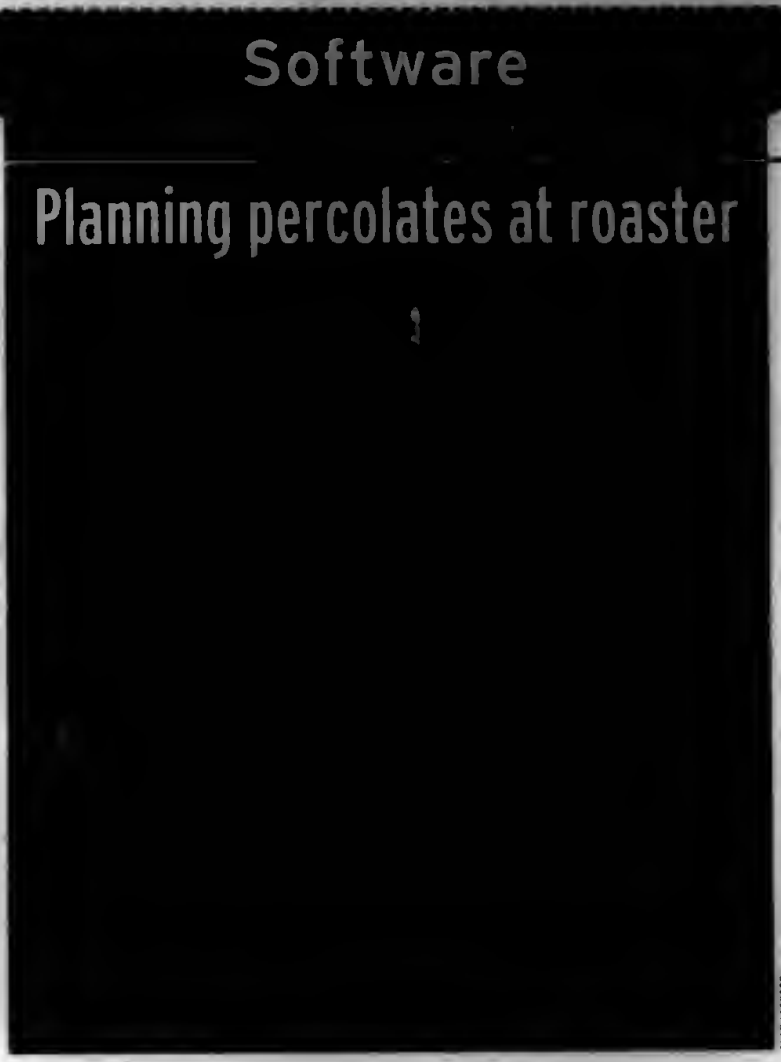
Planning percolates at roaster



ALAN JAKUBEK

▶ *Hopes additions to PeopleSoft system will give it competitive edge*

By Randy Weston

EARLIER THIS YEAR, managers at Green Mountain Coffee Roasters, Inc. took a chance on PeopleSoft, Inc.'s untried manufacturing management system because of its potential.

Now the $38 million roaster in Waterbury, Vt., hopes that additions to PeopleSoft's software will help keep its operations lean and efficient in its battle to compete with bigger gourmet coffee players such as Starbucks Corp. [CW, May 12].

PeopleSoft, in Pleasanton, Calif., is spicing up its new manufacturing module with the announcement this week of applications to help users fulfill customer product orders on time and manage their engineering systems.

A DASH OF RED PEPPER

Those applications, and other added functionality, are the result of PeopleSoft further integrating Red Pepper Software, Inc.'s planning engine into the manufacturing management system. The planning engine software lets plant managers plan the best use of space and

Planning, page 56

Oracle's plans for Sedona replacement still sketchy

By Craig Stedman

ORACLE CORP. has formally pulled the plug on its much-hyped but troubled Sedona object development software, but its plans to replace Sedona with a more Web-friendly development framework remain in the formative stage.

Users and software developers who are counting on Oracle to deliver tools that can build object-based distributed applications will have to remain patient. Oracle officials said they still haven't nailed down a new object strategy in the wake of this month's decision to not release Sedona [CW, Aug. 18].

The shifting sands of the Redwood City, Calif., company's strategy are getting hard to fathom, even for Oracle database users who don't have immediate plans to move to object technology.

"What we'd like is to have Oracle make a decision and tell us what it is so we can plan," said Doug Lhotka, research and development manager at Resort Computer Corp. in Lakewood, Colo. He said Oracle has "kind of flip-flopped back and forth a couple times" on a schedule for shipping development tools that support the object pieces of its new Oracle8 database.

But the official dismantling of the Sedona project should at

Sedona, page 57

IBM readies rollouts for R/3

At SAP AG's user conference this week, IBM will show several new R/3 products, including a preinstalled, prepackaged AS/400e-R/3 bundle for small to midsize businesses.

IBM officials said the Ready to Run R/3 on AS/400e bundle was designed to speed implementation of SAP's notoriously complex R/3 enterprise resource planning application.

The bundle includes an IBM AS/400e production server; an AS/400e test server; networking hardware, including an Ethernet switch and hub; R/3 end-user and administrative PCs with the SAPGUI user interface installed; an R/3-configured high-speed printer; management tools; and information and support materials.

The package also includes installation of the OS/400 operating system, the DB2/400 database and the R/3 system, including network configuration and R/3 base customization, IBM officials said.

A pilot phase followed by general availability is planned for Germany and the U.S. in the fourth quarter.

At the Sapphire '97 user show to be held in Orlando, Fla., IBM also will show its Network Station thin clients running a Java-enabled R/3 version, company officials said.

— Torsten Busse, IDG News Service, San Francisco

Software

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Briefs

Andyne Web queries

Andyne Computing Ltd., a maker of desktop decision-support tools, last week announced plans for a server-based architecture that will enable users to run analytical queries and reports via the World Wide Web. The upcoming software, code-named Project Talon, won't start beta testing until the fourth quarter, and a shipment date wasn't specified. Andyne, in Kingston, Ontario, said the software will be built around an object-based DSS Broker server that will download Java applets to users with Web browsers. Pricing wasn't disclosed.

Auspex purchase

High-availability server maker Auspex Systems, Inc. has bought Alphatronix, Inc. in Research Triangle Park, N.C., for $7 million. The move will let the Santa Clara, Calif., firm add Alphatronix's high-availability data management software to its line of multiterabyte network storage servers. Auspex's hardware ensures system availability, but the new software will let users back up critical data without hindering their access to that data.

PC privacy software

Communications hardware company Boca Research, Inc. in Boca Raton, Fla., is releasing its first software product. Designed to boost PC data privacy, Data Secure lets desktop users require passwords or a disk "key" for system access. It also has a text-encryption feature. A "light" version of the product will ship with Boca modems and will be posted on the company's Web site at *www.bocaresearch.com*.

Video log-on

Instead of dealing with passwords, PC users can now simply smile at their machines to prove who they are, according to Miros, Inc. The Wellesley, Mass., company has unveiled TrueFace CyberWatch Logon95, which compares the user's face with a previously stored image.

Planning percolates at roaster

Green Mountain Coffee's Jim Prevo... The company will use Red Pepper planning engine to cut inventory and better serve customers

ALAN JACOBS

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Planning percolates at Green Mountain Coffee

CONTINUED FROM PAGE 95

time in a factory.

Jim Prevo, chief information officer at Green Mountain Coffee, said his company will use the Red Pepper planning engine for its roasting operations, but it plans to expand its use to most segments of the company's business to better plan company operations. The result will hopefully be a company that holds less inventory and meets customer demands better.

"This is the next evolutionary step beyond distribution resource planning," Prevo said. With this software, "you can define your constraints and decide which things you care more about. We want to broaden its use for all of our products and out to the entire logistic supply chain," he said.

SPICING IT UP

PeopleSoft bought Red Pepper last year and has slowly sprinkled the technology throughout its product line. The latest additions include sales order prioritization, equipment preference and plant sourcing features.

The manufacturing pieces will be available next month with the general release of PeopleSoft 7, company officials said.

"This is the next evolutionary step beyond distribution resource planning. [With this software], you can define your constraints and decide which things you care more about."

– Jim Prevo, Green Mountain Coffee

It is an important release for PeopleSoft, which is far behind in the manufacturing market. Most of its competitors, including SAP AG, The Baan Co. and Oracle Corp., have catered to manufacturers for years. PeopleSoft hit the market last year with Release 6.

"PeopleSoft has to do something and do it quick," said Greg Girard, an analyst at Advanced Manufacturing Research, Inc. in Boston. "PeopleSoft has the potential to deliver a great supply chain framework if they move now."

The additions will put PeopleSoft in the running and give many customers the type of functionality they demand, Girard said.

WHAT'S NEW?

The product configurator is used to enter customer orders. It incorporates current production cycles, plant operation availability and inventory levels to give customers a delivery time when they order. It is also accessible remotely, so salespeople can place orders from a customer's office.

The engineering piece, which also comes with PeopleSoft 7, includes document management, bills of materials, change order and change requests functions, workflow approval processes and cost analysis software, company officials said.

From Red Pepper, the sales order prioritization feature lets users prioritize sales order shipments based on items such as who the customer is or where the order comes from.

The equipment preference application lets users specify which backup equipment should kick in if the primary equipment isn't able to handle all of an order or it breaks down.

The sourcing logic feature lets users choose the plant at which an order will be filled based on the inventory or previous commitments at each factory. □

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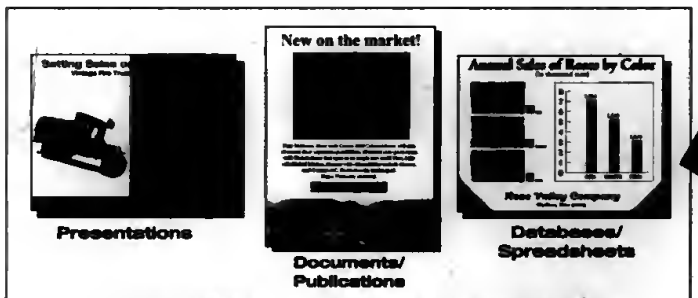

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Sedona replacement plans still sketchy

CONTINUED FROM PAGE 55

least free developers from having to worry about making a revolutionary leap away from Oracle's Developer/2000 and Designer/2000 tools, Lhotka said. Resort Computer is using those products to build a packaged application for the vacation time-sharing industry.

Potential competition with the widely used Developer/2000 was a drawback for Sedona all along, said an enterprise architect at a major insurance company in the Northeast who requested anonymity. "I never understood how they were going to package Sedona. That was always an open-ended issue," he said.

Sedona had been positioned as a key piece of Oracle's network computing architecture and was due to start limited shipments in July. But Oracle Chairman Larry Ellison ordered a return to the drawing board after the company's packaged applications unit balked at using the tool because it didn't support Java and thin clients [CW, June 16].

STARTING OVER

Steve Ehrlich, senior director of tools product marketing at Oracle, said the company decided that reworking the 3-year-old Sedona technology would be futile. Instead, it plans to piece together a new development framework built around Java, the World Wide Web and the Object Management Group's Common Object Request Broker Architecture for distributing objects across a network.

Pieces of Sedona, such as its object repository, will probably be tied to Developer/2000, Ehrlich said. But delivery schedules "would be a guess today," he said. Oracle hopes to have its object tools strategy pinned down in time for next month's Oracle OpenWorld '97 conference in Los Angeles. □

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With Sony's new Digital Mavica™ Still Camera, adding pictures and images to make professional looking documents has never been easier. Digital Mavica records on a standard computer floppy so you can play it back on virtually any PC. No more hassles with cables, interfaces or drivers.

Finally, a Digital Still Camera with Real Camera Features like a 10x power zoom lens with 1" macro capabilities and auto-focus, auto-white balance and auto-iris for proper exposure

10-to-1 ZOOM LENS

and a built-in flash and self-timer. Five Camera Mode Settings allow control of prevailing light conditions:

- Portrait • Landscape
- Beach and Ski • Sports
- Sunset and Moon

Never miss a shot! Sony's InfoLithium™ Rechargeable Battery allows up to 500 continuous shots[1] with a single charge as it powers a large 2.5" color LCD screen for composing, monitoring and playback.

Digital Mavica is compatible with virtually any PC. It uses universally compatible high density 3.5" standard computer floppies that can hold up to 20 high resolution or up to 40 standard resolution images in 24 bit color, 640 x 480 (VGA) JPEG format.

A single disk can store up to 40 images!

Slip the floppy into a PC and watch the work come alive. Digital Mavica is compatible[2] with Windows®3.1/Windows® 95 /Windows NT®4.0 or Mac™ OS System 7.5. Add images to your spreadsheets, newsletters, Websites or any popular imaging software. Digital Mavica also comes with ArcSoft PhotoStudio for creative options to manipulate images, add text and change backgrounds.

If you can picture it on a floppy, you can see it in your work!

MacOS PhotoStudio

Watch your work come alive!

Digital Mavica®

Imagine That. On a Floppy.

www.sony.com/mavica

NEW PRODUCTS

HUMMINGBIRD COMMUNICATIONS LTD. has announced Common Ground Web Publisher 4.0, a Java-based intranet publishing application.

According to the North York, Ontario, company, the Windows NT, server-based World Wide Web publishing system can create Web-ready digital versions of any document that can be printed.

The digital documents, which can't be edited, include Java-based applets that enable viewing independent of platform-specific viewers or plug-ins. A monitoring feature automatically scans specified input directories for documents to post to Web servers.

The application costs $4,995 per server, including licenses for five users with Web publishing rights. Additional publisher licenses cost $129 each.

Hummingbird Communications
(416) 496-2200
www.hummingbird.com

DATAVIZ, INC. has announced Conversion Plus 4.0, a utility for file translation and file access.

According to the Trumbull, Conn., company, the revised utility allows Windows 95 and Windows NT users to open files created with programs they don't have because the software converts unrecognized formats to files that can be read by programs located in the PC's Windows registry.

Version 4.0 adds electronic-mail decoding features that can decode uuencoded and Multipurpose Internet Mail Extension E-mail enclosures with the click of a mouse.

Conversion Plus 4.0 costs $99, or $39.95 for upgrades.

DataViz
(800) 733-0030
www.dataviz.com

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It goes without saying that the systems banks use to process payments must be connected seamlessly to share data. Duplicate data and inconsistent processing make managing risk impossible. That's why banks worldwide are selecting the Tandem® Payments Factory, which integrates banks' applications and their data. The Tandem Payments Factory is a Windows NT® Server-based solution from Tandem and Microsoft that combines the flexibility and cost-effectiveness of Windows NT Server with the business-critical reliability and security of Tandem hardware and software. In short, banks get the best of both worlds. Windows NT Server provides the power and scalability to handle 1 billion transactions a day and access to terabytes of data quickly. Tandem systems are trusted to handle 90% of the world's stock transactions, 80% of all ATM transactions, and 66% of all credit card validations in the United States. To learn more, visit our alliance Web site at www.bizcritical.com. Or call 1-800-NONSTOP, ext. 8107 for our latest information pack which includes white papers on "Making Enterprise-Class Clusters Come Alive" and "The Tandem Payments Factory."

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Microsoft

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NEW PRODUCT

The Naw HP NatSarver LXr Pro and Rack Solution

Intel Pentium Pro 200 MHz processor with 512KB cache and up to four-way multiprocessing
Also available in 1MB cache versions
HP NetRAID PCI Disk Array Controller with tbree Ultra SCSI channels, connects up to eight drives per channel
Up to 10 I/O slots: six bus master PCI, four EISA (one EISA slot reserved for system)
LAN Support and Comprehensive Network Support available as HP SupportPack
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Briefs

AT YOUR SERVICE

IDC's traditional hardware will slowly take a back seat to services and PCs

	1997	2002
Hardware	30%	25%
Services	24%	34%
PCs	17%	23%
Software	16%	13%
Maintenance and financing	13%	6%
Total revenue	$82B	$129B

Source: Information Financial Group and Gartner Group, Inc., Stamford, Conn.

Making the desktop decision

▸ Users base choice on design, not speed

By April Jacobs

USERS TRYING out the latest Pentium-based desktops have three types of processors and a widening array of designs to choose from as well as the enticement of lower prices. But surprisingly, many are basing their purchasing decisions on operating system platforms and form factor — not chip speeds.

WHO SHOULD USE IT

Desktop option	Type of user
133- to 200-MHz Pentium	A worker running Office suite applications, but not using 3-D graphics
Up to 200-MHz Pentium Pro	A worker running high-end applications, including graphics or engineering design applications
Up to 300-MHz Pentium II	A financial or high-end graphics applications user that requires number-crunching capabilities and fast processing speed for financial applications

WORLD OF CHOICES

Santa Clara, Calif.-based Intel Corp. currently offers three types of chips: the Pentium, Pentium Pro and Pentium II.

Hardware vendors offer several basic designs — minitower, standard, small footprint and network PC desktops — mostly aimed at giving users a comfortable space to work in and the most manageability possible.

As price continues to play a role, vendors are scrambling to push out the latest Pentium-based desktops at lower prices. Meanwhile, companies are busy segmenting their users to give them the best class of machine to get the job done at the best price point.

For many users, the choice appears to be based on the operating system they are running.

Desktop decisions, page 63

PC SERVERS

Sun sets sights on Wintel users

By Matt Hamblen

SUN MICROSYSTEMS, INC. last week unveiled the Enterprise 450 workgroup server, a clear attempt to win business that now goes to server vendors that use NT-based systems.

"It's an assault on the Wintel platform," said Michael Goulde, a consultant at Patricia Seybold Group in Boston. "The specs of the 450 look good and should be able to maintain a [performance] lead over anything Compaq has to offer."

Analysts said pricing should help Sun. With an entry price of $14,650, the cost of the server falls in the range of Intel Corp.-

Sun, page 63

Chiefs go digital for instant replay

▸ Fibre channel disk arrays give coaches fast access to game video

By Nancy Dillon

ANALYZING GAME footage is a cumbersome task for professional sports teams that rely on linear videotape cassettes, which must be individually loaded and manually searched.

Not so for the Kansas City Chiefs. Their coaches are using a newly installed system that stores game footage digitally on fibre channel storage devices for instant random access.

FASTER REVIEWS

The National Football League team uses video-editing stations that prepare digital footage for querying and viewing by four coaching workstations.

The editing and coaching stations are connected to the same fibre channel storage devices.

Coaches or players who sit at the coaching stations can simultaneously work with stored video to scout opponents, create databases of particular play outcomes and analyze historical player performance.

ED SELLO

Chiefs' director of video operations John Wuehrmann: "With our footage stored digitally on a fibre channel network, we are looking at 40% more video than we did with tape"

The system, purchased from network integrator Avid Sports in Lowell, Maine, includes four Clariion fibre channel-based storage drives from Data General Corp. in Westboro, Mass.

Each of the four FC5000 Disk Array Enclosures has 10 dual-port drive slots and a capacity of up to 91G bytes.

In the Chiefs' setup, the disk arrays offer transfer speeds of up to 100M bit/sec. The fibre channel connections let multiple users select portions from the same video clips with only

Chiefs, page 63

Digital first out with big laptop screens

By Kim Girard

DIGITAL EQUIPMENT CORP. next month will roll out the first in a new generation of big-screen laptops.

But analysts are questioning whether the company can build them fast enough if users come.

With the new HiNote Ultra 2000 portables due out in limited number next month, Maynard, Mass.-based Digital will vault ahead of the pack.

Rival vendors are expected to soon catch up, with 13- to 14-in. displays and 5G-byte hard drives. The largest displays most vendors currently offer are 11.3- or 12.1-in. screens.

Digital's new model packs a 14.1-in. LCD display into a laptop that weighs 6.2 pounds and is 1.35-in. thick.

Expect more of the same at Comdex/Fall '97, with vendors increasingly offering "slicing" or "stackables" — removable

Digital, page 62

Briefs

New Pentium Pro

Intel Corp. last week released a Pentium Pro processor with twice the cache memory of previous versions. The 200-MHz processor with 1M byte of Level 2 cache was designed for high-end server systems with four or more processors and for users who perform online transaction processing and data warehousing, Intel officials said. The new Pentium Pros cost $2,675 each in 1,000-unit quantities.

LAN-based backup

Imation Corp. in Oakdale, Minn., recently announced the 3225 Tape Library System, an automated backup system that supports up to 600G bytes of Unix, Novell, Inc.'s NetWare or Windows NT server data. The 3225 Tape Library System provides unattended network backup and hierarchical storage management. Imation will start to ship the system next month. Pricing will start at $12,495.

Year 2000 in fashion

New York-based fashion apparel firm Liz Claiborne, Inc. has purchased 3T bytes of disk array storage from EMC Corp. in Hopkinton, Mass., to handle year 2000 conversions. The fashion firm is upgrading its computing environment and making changes for the year 2000. It uses EMC's Symmetrix disk arrays to handle data from Unix and AS/400 servers.

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Digital, page 62

Digital to roll out big-screen laptops

CONTINUED FROM PAGE 61

parts that let users add or subtract features.

George Staton, information systems director at Commerce Bank in Cherry Hill, N.J., said 14-in. screens will work for the company's executives and technical staff.

But Staton said he will likely equip the bank's sales force with smaller 12-in. screen models.

"If someone is carrying [a portable] all day long, they're looking at weight rather than the possibility of a bigger screen," he said.

Digital's machines — the Ultra 2000 GTX 5166M and the VTX 5166M — include a third PC card slot with a 33.6K bit/sec. modem that can be upgraded to 56K bit/sec.

The machines cost between $4,999 and $5,999.

Gerry Purdy, president of Mobile Insights, Inc. in Mountain View, Calif., estimated about 10% of the laptop market will want to buy the 14-in.-screen models, which he called a "statement product" that will be too big for many users.

"The question is, can Digital build it?" he asked, pointing to the company's past problems with availability of portables. "They have to prove they can deliver products and not just announce them."

DIGITAL HINOTE ULTRA 2000

- Weight: 6 lbs.
- Screen: 14.1-in. extended graphics array, thin film transistor display
- Operating system: Windows 95 or Windows NT Workstation 4.0
- CD-ROM: 20-speed
- Modem: Built-in 56K bit/sec.

Nathan Nuttall, an analyst at Sherwood Research, Inc. in Wellesley, Mass., said Digital has a solid product. "Digital's problem has never been its hardware," he said. "It's their marketing and the channel."

Admitting to past problems with marketing and sales, Digital officials said they are working to solve problems and get computers into users' hands.

Overall, laptop shortages have ebbed during the past several months as vendors sold off the remainder of their inventory to prepare for the new lines.

Some analysts blamed last year's shortages on chip maker Intel Corp.

Because Intel pushed laptop vendors to release machines with faster chips, vendors had to deal with continuous, overlapping cycles and then underestimated user demand. □

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SHORT

Compaq "hot plug"

Compaq Computer Corp. last week released two high-end servers that will let information systems managers service the servers without having to take them off-line. "PCI Hot Plug" technology allows managers to replace a Peripheral Component Interconnect (PCI) board that has failed — or is in danger of failing — without turning off the servers, Compaq officials said. The servers that feature this technology, the Compaq ProLiant 7000 and the rack-mounted ProLiant 6500, cost $16,935 and $14,735, respectively.

Desktop decisions based on PC layout

CONTINUED FROM PAGE 61

Windows 3.1 and Windows 95 users seem to be less concerned with high-speed chips and larger memory configurations, and Windows NT users seem to be more demanding. NT users are gravitating to higher chip speeds and the Pentium II desktops.

"I'm not so much concerned about the chip platform," said Alex Hu, a senior technology officer at The Chase Manhattan Bank Corp. in New York.

Hu said form factor — meaning a lightweight machine that takes up as little space as possible — takes precedence over processor speed, which is usually based on a 166-MHz chip. Hu's department consists mostly of laptop users running Windows 95. For office clerical workers who use desktops, the price of the machine matters most as long as it can get the job done, Hu said.

"Right now, a high-end Pentium processor is fine, but if we were to go with Windows NT, we would have needed Pentium Pros or Pentium IIs," Hu said.

USER-CENTRIC

And vendors are playing to the needs of users, offering a plethora of configurations.

Although most vendors see production of Pentium Pro desktops slowing down by year's end, Pentium-based machines are still going strong. Suppliers such as Dell Computer Corp. in Round Rock, Texas, are rolling out new offerings that support newer technologies such as Universal Serial Bus and the Advanced Configuration and Power Management Interface standard, which allows for better power management and remote configuration. Dell will roll out its offerings this week.

"Pentium machines [with speeds] up to 166 MHz are the corporate production desktop right now, and they also tend to be the commodity desktop in terms of price," said John Dunkle, president of Workgroup Strategic Services, Inc. in Portsmouth, N.H.

"The users who can really fully utilize a Pentium Pro are NT users who need a 32-bit processor," Dunkle said. Those users tend to run design applications or may be programmers who need a full feature set and speeds up to 266 MHz, he said.

Price differentials are still high between Pentium Pro and Pentium machines — usually about $2,000. A Pentium-based desktop costs an average of $1,500, and a Pentium Pro machine costs between $3,000 and $4,000.

Other users are caught up in trying to find lower-cost machines that still give high-end performance.

"Our problem is that we have to use the cheapest machine we can find," said J. Briscoe Stephens, advanced scientific information systems coordinator at NASA's Marshall Space Flight Center in Huntsville, Ala.

"But we're also in the scientific area, so our low-end user is getting a Pentium II 233-MHz machine or dual Pentium Pro machines," Stephens said. He said as production increases, prices tend to come down. □

New Dell desktop

Dell this week plans to announce its OptiPlex GN Pentium-based desktop, which features processing speeds of 166, 200 and 233 MHz as well as support for Universal Serial Bus technology.

The company will make the new desktops available in three designs, including the low-profile, small footprint model; the midsize desktop; and minitower configurations.

Pricing for the desktops ranges from $1,479 for a 166-MHz Pentium model with 16M bytes of memory and a 1.6G-byte hard drive, to $2,791 for the 233-MHz version with 64M bytes of memory.

— April Jacobs

Chiefs go digital for instant replay

CONTINUED FROM PAGE 61

minimal response delays.

The connections mean Kansas City coaches get to line up reviews of game films more quickly, and more often, than they could last season, said John Wuehrmann, the team's director of video operations.

"The one enemy of coaching is time," Wuehrmann said. "With our footage stored digitally on a fibre channel network, we are looking at 40% more video than we did with tape. We used the system after our Pittsburgh game [Aug. 2] to make cutups immediately available on our four coaching stations."

Wuehrmann didn't say how much the Chiefs spent on the video project, but he said the performance gains justified the investment.

Fibre channel is an emerging data transfer technology for users who need faster data access than SCSI-based storage systems and who will pay a premium price. Fibre channel links have transfer rates that start at 100M bit/sec. SCSI rates run between 20M and 40M bit/sec.

And fibre channel allows for cabling path lengths of up to 10 kilometers (6.2 miles) using fibre-optic cabling — a big improvement over the 25-meter path limit for SCSI connectivity.

Analysts said users are looking at longer distance connections because they often need more flexibility to handle geographically distributed equipment.

Anders Lofgren, an analyst at Giga Information Group in Cambridge, Mass., said fibre channel storage is an obvious choice for applications such as video servers, online transaction processors and databases, in which performance is critical. He said it will become more mainstream in the next year.

"These types of storage networks will connect multiple servers to multiple storage devices and will force vendors to address remaining questions related to interoperability, operating system support and device management," Lofgren added.

Besides the Chiefs, the Buffalo Bills, the Green Bay Packers and the New England Patriots use the fibre channel storage connections for their video reviews.

Other vendors that offer similar fibre channel disk arrays include Unisys Storage Solutions Programs in Mission Viejo, Calif.; Boxhill Systems Corp. in New York; and Megadrive Systems, Inc. in Chatsworth, Calif.

Sun Microsystems, Inc. in Mountain View, Calif., is slated to announce its second-generation fibre channel disk array in the next three months.

Vendors of fibre channel hubs and switches include Brocade Communications Systems, Inc. and Gadzoox Networks, Inc., both in San Jose, Calif. □

NEW PRODUCTS

MICRONET TECHNOLOGY, INC. has announced Advantage RAID, a self-contained desktop RAID Level 5 storage system aimed at the small business and Internet storage markets.

According to the Irvine, Calif., company, Advantage RAID houses six hard disk drives that can be swapped without cutting power; a 32-bit RISC microprocessor; and a RISC-based, embedded RAID Level 5 controller.

The system is available in a 20G-byte configuration and can connect to any computer system with a SCSI port or host adapter.

The Advantage RAID system costs $6,995.

Micronet Technology
(714) 453-6100
www.micronet.com

MYLEX CORP. in Fremont, Calif., has announced a line of SCSI host bus adapters that can also act as RAID controllers.

According to the vendor, RAIDPlus-enhanced Flashpoint adapters can act as conventional SCSI adapters or can provide RAID Levels 0 and 1 support without the use of a separate hardware RAID controller. The adapters can have one or two channels and were designed to support up to eight disk drives in RAID configuration.

The adapters cost between $179 and $499. Mylex customers can purchase RAIDPlus upgrade kits for $99.

Mylex
(510) 796-6100
www.mylex.com

Sun sets sights on Wintel users

CONTINUED FROM PAGE 61

based vendors. Principle targets of Sun's move include Compaq Computer Corp. in Houston, Digital Equipment Corp. in Maynard, Mass., and Dell Computer Corp. in Round Rock, Texas, Goulde said.

The Enterprise 450 will run the Sun Solaris operating system but will interoperate with any PC client environment, including Microsoft Corp.'s Windows NT, Sun officials and analysts said.

According to Sun, the server runs 43% more transactions per minute than Compaq running Windows NT. Database vendors Oracle Corp. and Sybase, Inc. also announced software for the Enterprise 450 that is similar in price to database software for the Windows NT platform.

Internet Shopping Network, an Internet-based retailer in Palo Alto, Calif., has tested Sun's workgroup server and is likely to buy it.

"Our business is online, and if we are down, we are revenue negative," said Keith Foxe, manager of promotions and communications. "We have to have the ability to feel comfortable with the architecture."

JAVA FACTOR

As a result, Internet Shopping Network has installed Sun 5000 and Enterprise II servers to support two World Wide Web sites with 14 million visitors per year, Foxe said.

"Sun has provided the most stable solution and scalability" when compared with Windows NT systems in tests, he said.

Java is another reason to work with Sun servers. "A lot of programmers are writing in Java and want to work there," Foxe said.

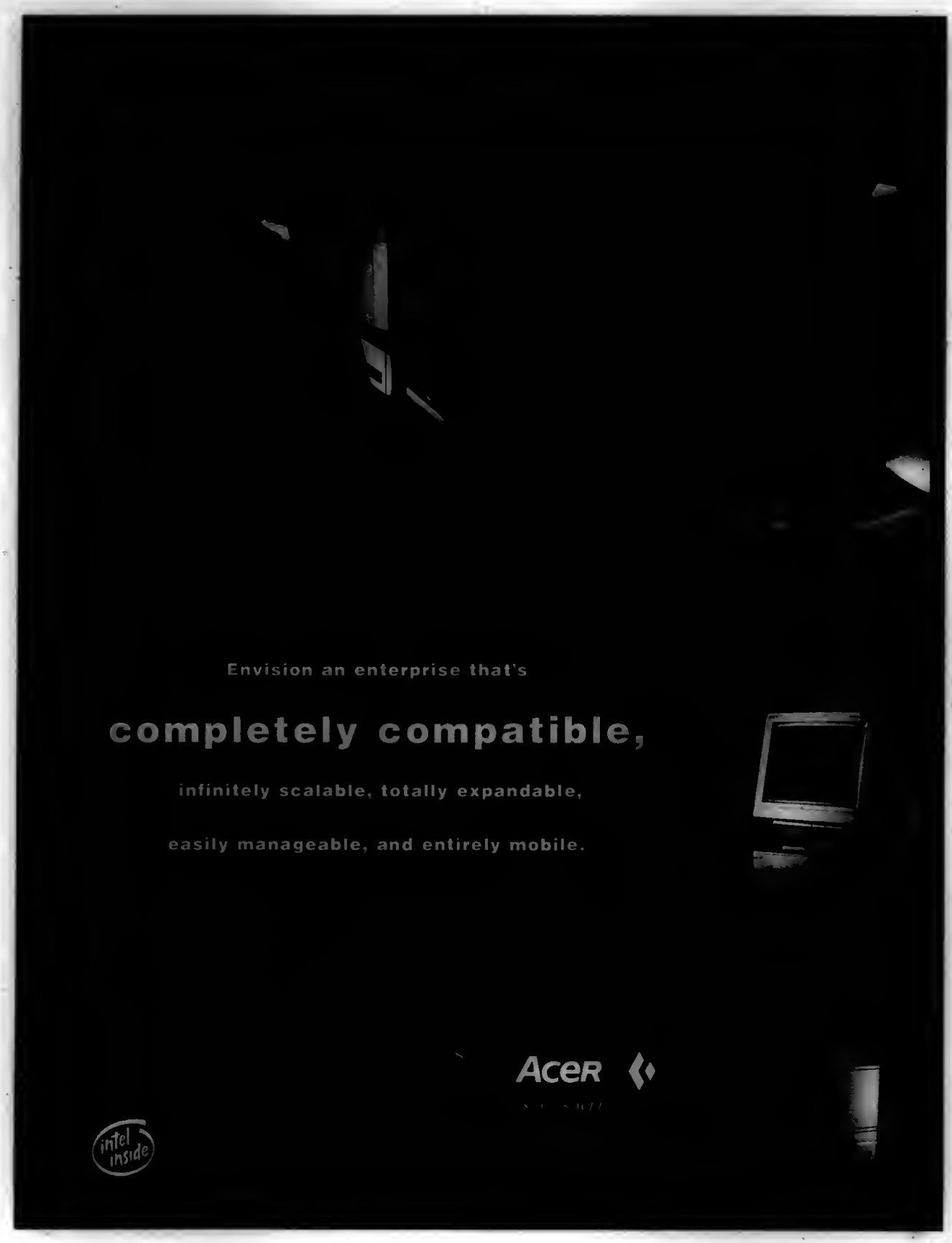
Sun has been the server of choice at Bayer Canada, Inc. in Etobicoke, Ontario.

The Enterprise 450 gives the company added flexibility to link Windows-based clients to its networks, said Jeff Wessinger, manager of business systems development.

"Sun servers have performed over and above the others, and there have been constant problems with NT having to reboot every couple days," he said.

Bayer uses a program it developed to connect 250 salespeople in remote locations throughout Canada to its database.

With Sun servers, six remote users can update files at one time within three minutes. On NT servers with only three concurrent users, it takes 2.5 hours, he said. □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Acer
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Mobile Computing

Special Section: Remote Access • Portable Computers • Mobile Strategies

Briefs

PORTABLE PROFESSIONALS

What type of employee uses handheld computers most often?

Executive-level manager	27%
Mid- to lower-level manager	13%
Field sales representative	6%
Educator	6%
Engineer	5%

Note: 200 IS professionals involved with managing or supporting the use of handheld computers at their organizations; multiple responses allowed. Top five responses listed.

Source: Computerworld Information Management Group, Framingham, Mass.

PRODUCT REVIEW ▶
Psion Series 5

OVERALL GRADE A-

Psion, Inc.
Concord, Mass.
www.psion.com
Price: $599

Palmtop is a pricey workhorse

By Chris DeVoney

IF YOU NEED a palmtop that works as hard as you do, Psion, Inc.'s Series 5 palmtop is ready for battle.

Armed with an armada of applets, better Windows connectivity than most palmtops and a legible, back-lit LCD display, the Psion relentlessly plods through most tasks you would expect from a palmtop. The only problem is that you may feel like the Pentagon after shelling out for all of the required "accessories," which can push the price as high as $1,100.

Physically, this palmtop measures 6.7 in. by 3.5 in. by 0.9 in. When the left edges are aligned with a standard keyboard's keys, the unit's right edge just touches the "K" key. At 12.5 ounces, the unit easily slips into a pant or suit coat pocket.

The touch-sensitive LCD has 640- by 240-pixel resolution with a backlight that hardly affects the 35-hour operating time supplied by a pair of AA batteries. Once opened, the 5.25-in. by 2-in. screen is fixed in place on a 30-degree incline, but the unit compensates with contrast controls, plus an ingenious, pen-controllable zoom setting that adjusts the screen's magnification.

MANY APPLICATIONS

The Psion offers a variety of applications: word processing, spreadsheet, agenda, telephone book, database, several accessories (alarm clock, calendar, voice memos and paint) and faxing (optional fax/modem required). It also prints to a handful of

Psion, page 69

Wireless users outstanding in field

Municipal Services' Mark Stevens says the wireless system makes workers more productive

Laptops that can take a licking

▶ *Police, utilities see benefits of rugged machines*

By Suruchi Mohan

THESE MACHINES were built to take a beating.

Designed initially for military use, ruggedized portable computers are fast becoming the darlings of utility crews and police and fire departments across the country. They are built to withstand extreme temperatures, moisture, vibration, dust and the impact from "drop shock."

The Philadelphia police, who have been installing ruggedized laptops in cruisers and vans, are witnesses to their durability, said Chief Inspector Charles Brennan. The officers are using PCMobile portables from XL Computing Corp. in Sebastian, Fla.

One model has survived two accidents. In the first, a van overturned in a crash with a police car. Two weeks later, a second van carrying the portable turned over. Again, the laptop took a licking and kept on clicking, Brennan said.

Apart from their hardiness, these computers provide a far safer way for officers to communicate than is possible with radio, the police say. Criminals easily tune in to the same frequency with their scanners and pick up police conversations. But this technology may keep the police ahead for a while.

In San Jose, Calif., Officer Louis Quezada's cruiser is outfitted with a CF-25 portable computer. The computer, from Panasonic Personal Computer Co. in Secaucus, N.J., looks like a regular laptop. A wireless modem in the cruiser's trunk and a

Laptops, page 69

Mobile Computing

Special Section: Remote Access • Portable Computers • Mobile Strategies

Briefs

Europeans eye spec

Four European vendors have thrown their weight behind a wideband, wireless technology specification being considered by the European Union. Ericsson Group, Alcatel Alsthom SA, Nokia Telecommunications Corp. and Siemens AG are backing the Universal Mobile Telecommunications System, which provides data transfer rates between 14.4K bit/sec. and 2M bit/sec. If accepted, commercial services should be available by 2002.

Monitoring E-mail

Synaxis Corp. is shipping AlertWare 1.5, a new version of its monitoring software for Novell, Inc.'s GroupWise that supports TCP/IP, Novell's IPX or electronic-mail client connections. The software warns administrators when messaging errors occur. It costs $995.

Notebook price cuts

Compaq Computer Corp. in Houston last week cut prices for its Armada 7700 and LTE 5000 notebook PC lines. The price for the 150-MHz Pentium MMX Armada 7700 Model 7710MT was reduced to $3,699 from $4,399. Other price cuts include: the 166-MHz Pentium MMX Model 7730MT, down $600, to $4,339; the LTE 5000 Model 5300 with a 133-MHz Pentium processor, cut $700, to $2,699; and the 150-MHz Pentium Model 5400, reduced by $700, to $3,199.

PORTABLE PROFESSIONALS

What type of employee uses handheld computers most often?

Executive-level manager	27%
Mid- to lower-level manager	13%
Field sales representative	6%
Educator	6%
Engineer	5%

Base: 202 IS professionals involved with managing or supporting the use of handheld computers at their organizations. Multiple responses allowed; top five responses listed.

Source: Computerworld Information Management Group, Framingham, Mass.

PRODUCT REVIEW ▶
Psion Series 5

OVERALL GRADE A-

Psion, Inc.
Concord, Mass.
www.psion.com
Price: $599

Palmtop is a pricey workhorse

By Chris DeVoney

IF YOU NEED a palmtop that works as hard as you do, Psion Inc.'s Series 5 palmtop is ready for battle.

Armed with an armada of applets, better Windows connectivity than most palmtops and a legible, backlit LCD display, the Psion relentlessly plods through most tasks you would expect from a palmtop. The only problem is that you may feel like the Pentagon after shelling out for all of the required "accessories," which can push the price as high as $1,100.

Physically, this palmtop measures 6.7 in. by 3.5 in. by 0.9 in. When the left edges are aligned with a standard keyboard's keys, the unit's right edge just touches the K key. At 12.5 ounces, the unit easily slips into a pant or suit coat pocket.

The touch-sensitive LCD has 640 by 240-pixel resolution with a backlight that hardly affects the 35-hour operating time supplied by a pair of AA batteries. Once opened, the 5.25-in. by 2-in. screen is fixed in place on a 30-degree incline, but the unit compensates with contrast controls plus an ingenious, pen-controllable zoom setting that adjusts the screen's magnification.

MANY APPLICATIONS

The Psion offers a variety of applications: word processing, spreadsheet, agenda, telephone book, database, several accessories (alarm clock, calendar, voice memos and paint) and faxing (optional fax/modem required). It also prints to a handful of

Psion, page 69

Wireless users outstanding in field

By Kim Girard

AT MUNICIPAL SERVICES Group, Inc., 20 mobile salespeople use wireless modems on their laptops to broker multimillion-dollar purchases that include helicopter and bus fleets. From clients' sites and the road, they originate loan transactions, credit reviews and securities and bond rates.

Faced with a cumbersome ref[illegible] model that supports Municipal Services' [illegible] ng diffe[illegible] bundled wireless service from Aurora, Colo.-based Wireless Telecom, Inc. (WTI).

Mark Stevens, vice president at Municipal, said the service was easily integrated into his company's network, which is based on Microsoft Corp.'s Exchange. Using the system, employees' messages, one another from the hard share up-to-the-minute sales info[illegible] on their intranet and route contracts lawyers who are involved with deal

Wireless network, page 69

Municipal Services' Mark Stevens says the wireless system makes workers more productive

Laptops that can take a licking

▸ *Police, utilities see benefits of rugged machines*

By Sunachi Mohan

THESE MACHINES were built to take a beating.

Designed initially for military uses, ruggedized portable computers are fast becoming the darlings of utility crews and police and fire departments across the country. They are built to withstand extreme temperatures, moisture, vibration, dust and the impact from drop shock.

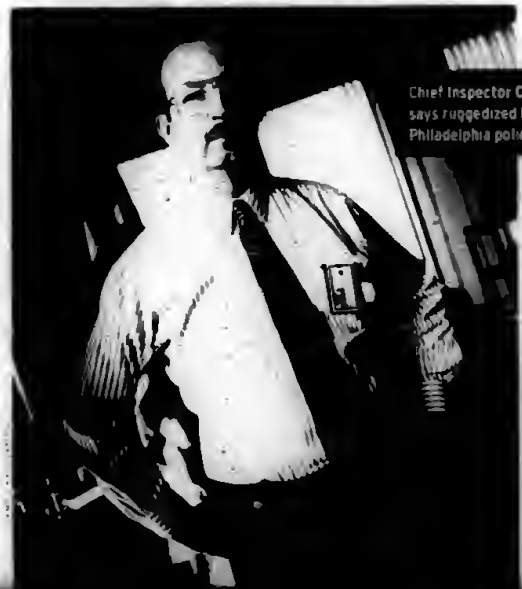
The Philadelphia police who have been installing ruggedized laptops in cruisers and vans are witnesses to their durability, said Chief Inspector Charles Brennan. The officers are using PCMobile portables from NI Computing Corp. in Sebastian, Fla.

One model has survived two accidents. In the first, a van overturned in a crash with a police car. Two weeks later, a second van carrying the portable turned over. Again, the laptop took a licking and kept on clicking, Brennan said.

Apart from their hardiness, these computers provide a far safer way for officers to communicate than is possible with radio, the police say. Criminals easily tune in to the same frequency with their scanners and pick up police conversations. But this technology may keep the police ahead for a while.

In San Jose, Calif., Officer Louis Quezada's cruiser is outfitted with a CT 25 portable computer. The computer, from Panasonic Personal Computer Co. in Secaucus, N.J., looks like a regular laptop. A wireless modem in the cruiser's trunk and a

Laptops, page 69



Chief Inspector Charles Brennan says ruggedized laptops for the Philadelphia police have endured

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Wireless network

CONTINUED FROM PAGE 65

"Wireless for us would not be relevant if not for the fact that we can couple wireless E-mail with the Exchange server and maximize the use of groupware," Stevens said. "Our field personnel are as effective as if they were in our office."

He said the wireless system doesn't save money, but it makes workers more productive.

"We can deliver current data, and I don't really need to put a pencil to that," Stevens said. "The necessity of real-time information is critical. Small market fluctuations can have a big impact on our deals."

Although it does have many niche applications, wireless networking is undoubtedly the underdog mobile application in business today, hampered by cost and lack of universal availability. Of 6.5 million notebook users, 90% use LAN-line modems; fewer than 1 in 100 use wireless modems, which are typically twice the cost of LAN-line modems.

But for users who can't be bothered to connect a laptop to a telephone jack, wireless service lends an easier-to-use alternative for exchanging messages, and it is worth the extra cost.

SERVICE WITH A TWIST

WTI, a wireless service reseller and integrator, recently introduced a twist on its MobileLogic Network Service, which is based on Exchange. For about $100 per month per user, firms can lease laptops and have access to a remote access server and gateway to their corporate LAN.

Using the service, companies avoid building their own wireless network. Other wireless offerings include IBM's ARTour, a middleware application aimed at public safety and field workers that provides mobile users with access to the World Wide Web. It requires user companies to integrate their networks with the access service.

The ARTour service provides wireless TCP/IP connections so users can run Web-based applications over wireless networks provided by companies such as RAM Mobile Data USA L.P. in Woodbridge, N.J., and Ardis Co. in Lincolnshire, Ill. Both services charge between $100 and $150 per month for each end user for more data-intensive applications.

Lanier Worldwide, Inc. uses the ARDIS wireless data network in its call service center. The Atlanta-based company handles 14,000 calls per day, and wireless technology is used to message team leaders.

At Lanier, 200 team leaders — who work in the field with groups of technicians — use notebooks to exchange wireless messages with the company's service center over the ARDIS wireless data network. Prior to installing the system six months ago, Lanier technicians called in via pay phones.

QUICK REPLY

Mike Murray, Lanier's director of national accounts, said the system enables teams to respond quickly to service calls and distribute work among employees efficiently.

"We still have some limitations within applications," Murray said, including the team leaders' inability to E-mail one another. "We're measuring cost-effectiveness." Ideally, Murray said, team leaders will enter client information into the system, instead of a call center operator.

Gerry Purdy, president of Mobile Insights, Inc., a consultancy in Mountain View, Calif., called outsourcing services such as WTI's per-month deal "a glimmer — a bright light in an overall world that hasn't really gone anywhere."

"It's for the people who really need it," Purdy said. "But let's not force a round peg in a square hole and say that users will magically overnight buy wireless modems for their computer." Smaller and cheaper handheld devices and smart phones that deliver voice and data will likely catch market share first, he said.

Mike Widell, an information systems management team member at Alliant Technical Systems, a defense contractor in Minneapolis, said a remote access service such as WTI's is too expensive for all of his company's 500 remote users.

"We're looking at it for E-mail for the CEO and [chief operating officer] so they can get messages without all the hassles of sitting down and plugging in. It's not affordable for the majority to use at this time," Widell said.

Overall, higher-end wireless data service needs to drop to about $50 per month before it is palatable to users, said Phillip Redman, an analyst at The Yankee Group in Boston. □

Psion's Series 5 palmtop

CONTINUED FROM PAGE 65

common printers via the infrared port or an optional serial-to-parallel cable.

The PsiWin applet, running under Windows 3.1, 95 or NT, makes a connection between the desktop and Psion using an interface similar to Microsoft Corp.'s Internet Explorer browser. It translates files from old and newer versions of Borland International, Inc.'s dBase and Quattro Pro, Corel Corp.'s WordPerfect, Lotus Development Corp.'s SmartSuite and Microsoft Office files, plus other common text and data formats.

But if you use WordPerfect 8.0, Office 97 or Outlook, you must save your files using the earlier formats. The company plans to ship an update in October that handles the documents from those applications.

Two applications critical for travelers — electronic mail and World Wide Web browsing — are missing. Both absences will be corrected in the update, which will ship with new units and be available for downloading on Psion's Web site. The mail client will be fully compatible with Post Office Protocol 3, and the browser will adhere to the current Hypertext Markup Language 3.2 standards.

We found the unit remarkably versatile in handling basic Word and Excel files, preserving and printing almost all common format and formulas. Most office documents, and to our surprise several simple Word 97 and Excel 97 files, converted easily. Although the keys are too small for touch-typing, you can two- to four-finger type with some speed.

Armed with an armada of applets and Windows connectivity, the Psion relentlessly plods through most tasks

Our major complaint was its basic speed. Although peppy enough while entering or viewing documents, a four-page document took more than five minutes to apell check on the Psion. (It took less than 30 seconds on a 200-MHz Pentium Pro.) And switching between applications was sometimes tedious.

The units use SanDisk Compact flash memory cards for disk storage. The basic unit comes with a 4M-byte flash card. A unit with an 8M-byte card costs $699. Unfortunately, a PC Card holder for the flash to easily move files between the palmtop and a notebook isn't included.

For that matter, Psion charges extra for almost every additional item. The parallel printer cable costs $60. The external 14.4K bit/sec. fax modem costs $249. And you must pay an additional $129 for the privilege of using a PC Card (the cost of the optional PCMCIA adapter powered by a separate set of AA batteries). You do get the serial cable to hook up your Psion to your desktop for free, but the AC adapter is another $29. That puts the unit at more than $1,000. And if you go for the 8M bytes of memory, the cost is more than $1,100 — pricey for a palmtop.

The Psion 5 costs more than Windows CE palmtops, but it does as good a job traveling with Windows documents and is easier to read and use. But waiting a month or so for the new software is prudent. Provided the update works as advertised, you will be able to safely charge directly for this intelligent palmtop. □

DeVoney is a freelance writer in Seattle. He can be reached at chrisd@cybercritic.com.

Laptops

CONTINUED FROM PAGE 65

roof antenna on Quezada's marked vehicle keeps the officer connected to headquarters.

Quezada said he supplements information he receives from the radio dispatcher with data he retrieves via his portable from the department's VAX minicomputer.

In fact, Quezada said, supplemental information is critical in times of heavy police radio traffic in the growing department, which serves a city of 900,000. With the computer, he doesn't have to wait to speak with the radio dispatcher.

"As the department became larger, radio waves became so congested that it became an issue of officer safety. You can do a lot of back and forth communication using these laptops. ... If an officer utilizes this tool, it can enhance how [he does his] job," Quezada said.

Packet radio communications such as that used by the San Jose police is harder to break in to because each message is disassembled, sent over several channels, then reassembled at the receiving station. It is possible to break in to this network as well, but a hacker would have to scan several channels at the same time, said Roberta Wiggins, director of wireless mobile communications at The Yankee Group in Boston.

But you don't need specially built — and premium-priced — ruggedized laptops to get that benefit, some analysts say. Ken Dulaney, a mobile computing analyst at Gartner Group, Inc. in Santa Clara, Calif., said regular laptops are quite durable.

"I have found in most cases that ruggedness claims are slightly exaggerated," Dulaney said. "I'd do a bake-off before I bought one," comparing ruggedized models against regular laptops from mainstream vendors, he said.

Dulaney said users should test ruggedized models well before committing to these high-cost items, which start at about $3,500. Users also should investigate support plans: whether support is available in all cities users might visit and if the manufacturer has enough parts.

But Kirby Diller, an engineer at Union Electric in St. Louis, who uses the FW 5000 series portable computer from Fieldworks, Inc. in Eden Prairie, Minn., said ordinary laptops wouldn't be able to withstand the wear and tear of his job.

"Ordinary laptops would consume themselves in a month," said Diller, who works in the utility's information technology department. These portables are used by big men who are used to tools, not computers, he said. □

Mohan is a freelance writer in Los Altos, Calif.

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"Editor's Choice"
August 1997
PC Magazine

"A-List"–Editors' Top Picks
Lightweight Traveling Notebook
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PC/Computing

"Reviewer's Choice"
April 1997
Home PC

"Recommended"
April 1997
CNET.COM

"Computer of the Month"
April 1997
MicroTimes

"Reviewer's Choice"
April 1997
Home PC

"Head to Head"
March 24, 1997
InfoWorld

"Top 20 Notebook PCs: Power Notebook"
February 1997
PC World

"Recommended"
February 1997
Windows Magazine

1996 "MVP Traveling Portables"
January 1997
PC/Computing

"Best Products of the Year"
January 7, 1997
PC Magazine

"Most Important Products of the Year 1996"–Portable
December 16, 1996
Information Week

"Best Product of the Year"
December 1996
Mobile Computing

"Technical Excellence" –Portables
December 1996
PC Magazine

"Most Valuable Product" –Traveling Notebook
December 1996
PC/Computing

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Buyer's Guide

Web flow

By Carl Frappaolo

You already have a World Wide Web site, and you are no doubt well on your way to deploying an Internet environment. But what have you done about document management? Many organizations have been mesmerized by the Internet's sheer power of open access to documents and are moving to leverage this power into more effective communication within their enterprises and with their customers and partners.

The electronic document has come of age. Electronic documents are used as widely and casually as their paper predecessors. A recent study by *Forbes* magazine found U.S. corporations sent more electronic mail last year than the U.S. Postal Service delivered paper mail. Once you've opened the information floodgates with the Internet and permutations such as intranets and extranets, the rules of information accessibility are changed forever. The Internet's viewing and retrieval capabilities, combined with the publishing and control/manipulation features of document management systems, are empowering companies to look beyond the current rules of corporate relationships.

Before [illegible] tool [illegible] the [illegible] accessibility

Yet an unsuspecting organization can be crushed by the sudden flood of information. Companies should take time early on to construct a strategic approach, or the opportunity offered by this unprecedented ability to manipulate document-based information could be underrealized.

A document management system plays several roles in the Internet. It can make documents viewable (Web-accessible), enable online publishing (Web-enabled), and facilitate customized communications (Web-exploited). Each of these levels requires varying degrees of content and process control, and each propels an organization to new levels of communication and business process execution. Finding the right mix takes careful and diligent business analysis. Not using this functionality to its fullest can be as damaging as overusing it.

Here's a look at the three levels of document management on the Web:

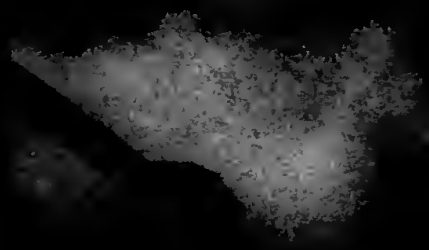
Web-accessible

Every document management system that can be deployed over the Internet allows browser-based access to a document repository. Browser-based access is the lowest common denominator among document management products for the Web. Although these products provide controlled access, there's no support for managerial functions such as creating new documents, checking documents into the repository or editing documents from a Web browser.

Browser-based access supports the original premise of the Internet: an online publishing system. Adding a "Web-accessible" document management system to the Internet permits virtually any document, not only those formatted in Hypertext Markup Language (HTML), to be viewed from a browser. A basic document management system greatly facilitates the publishing of documents over the Web and can eliminate the need to have a webmaster convert and handle documents prior to publishing.

Web flow, page 74

intel
inside
pentium II



Web flow

CONTINUED FROM PAGE 71

The browser-based level of functionality is ideal for applications in which documents are centrally managed and controlled yet wide-scale read access is required. A corporate policy and procedure manual, for example, can be created, updated and edited in a desktop publishing system by corporate administration. Placing the document in a Web-accessible repository allows read access globally; field personnel and branch offices can get up-to-date information using a browser. Information is viewed in its true native format in real time.

Before a company takes this approach to wide-scale publishing and communication, the system designer should consider its limitations. Because the document management system provides access to native (non-HTML) documents, the designer must be aware of the requirements placed on the browser client platform.

Several document management products automatically convert documents to HTML. These include Information Dimensions, Inc.'s Basis Intranet, PC Docs, Inc.'s CyberDocs/OpenDocs, Interleaf, Inc.'s Intellecte/BusinessWeb, NetRight Technologies, Inc.'s IManage Internet, EZPower Systems, Inc.'s PowerOffice and OpenText Corp.'s Livelink Intranet. Thus the client machine isn't required to have the native authoring tool, such as Microsoft Corp.'s Word or Corel Corp.'s WordPerfect. But there's a possibility that the documents will lose their formatting when converted.

With products such as Documentum, Inc.'s Rite Site, NovaSoft Systems, Inc.'s NovaWeb, Altris Software, Inc.'s Wisdom and FileNet's @mezzanize, the browser on the client can launch the native application or a viewer and maintain the original formatting and, possibly, editing. However, this approach requires that the native application or viewer be resident on the client platform, thus limiting the concept of universal access and ultra-thin clients.

Going a step beyond, Intranet Solutions, Inc.'s Intra.doc automatically converts a document to Adobe Systems, Inc. Portable Document Format for viewing. In another approach, InterTech Information Management Corp.'s DocuPact provides a document viewer that supports more than 200 file formats as an integral part of its document management server, letting users view the native file without launching the native application.

Web-enabled

In each instance, the functionality of Web-accessible systems is limited to read-only access. Thus, the Web isn't used as a dynamic environment. Going beyond this, some products allow a Web-accessible document to become an active document. They include Wisdom, NovaWeb, Basis Intranet, PowerOffice and Livelink Intranet.

Under a Web-enabled document management system, the document repository is a bidirectional working environment. Browser clients can check documents out of the repository, so a user can make changes and check the revised document back into the repository. The browser client is enabled to be a combination author/editor and reader.

Now the document can be more tightly tied to a business process, and it becomes the foundation for bidirectional asynchronous communication. Web-enabled technology greatly facilitates collaborative document creation and management in a secure and controlled environment. For example, a user could create an extranet-based repository of contracts from which various corporate personnel, outside lawyers and business partners could retrieve drafts of a document and make proposed changes. As the documents are checked back in to the repository, new revisions would be created and an audit trail maintained to record the life cycle of the contract, monitoring the negotiation process.

In a similar manner, branch office personnel could maintain specific sections of a corporate policy and procedures manual so that authoring and editing become global functions as well. Customers also could complete and review order and shipping documents online. In this approach, the Web-enabled environment is used to create an open platform on which business can be conducted, not simply used as a publishing mechanism.

Web-exploited

The highest level of Internet-related functionality is provided by products that specifically exploit the dynamic nature of Web content and transform documents into entities capable of customized one-to-one communication. Using programmatic logic or heuristics, Web pages are constructed on the fly to provide person-

The integrated EDMS approach

As you evaluate document management, also consider the sibling Electronic Document Management Systems (EDMS) technologies. Offerings such as spiders, agent technology and heuristic concept-expansion tools add powerful search and retrieval capabilities. The availability of these search tools can help transform the document repository into a foundation for a knowledge management system. They provide intelligent, personalized and powerful means to discover or determine the knowledge found within the document collection, drawing on content, user experience, user perceptions and cross-document/repository trends.

DOCUMENT MANAGEMENT PRODUCT CHECKLIST

COMPANY/CONTACT	@mezzanize FileNet Bellevue, Wash. (800) 827-2767 www.filenet.com	Basis Intranet Information Dimensions, Inc. Dublin, Ohio (800) 328-2648 www.idi.oclc.org	CyberDocs/ OpenDocs PC Docs, Inc. Burlington, Mass. (800) 933-3627 www.pcdocs.com	DocuPact InterTech Information Management Corp., Atlanta (800) 671-7272 www.intertech.com	Fandango InSystems Technologies, Inc. Markham, Ont. (905) 513-1400 www.insystems.com	IManage Internet NetRight Technologies, Inc. Chicago (312) 977-0664 www.netright.com
BASIC FUNCTIONALITY						
Web-accessible	✔	✔	✔	✔	✔	✔
Web-enabled				✔		✔
Web-exploited					✔	
SEARCH ENGINES						
Embedded		✔		✔		
Third-party	✔		✔			✔
Spiders, crawlers, agents, etc.			*			
WORKFLOW						
Embedded					✔	
Third-party	✔		✔	✔		
Participate in			*	✔	✔	
Create			*	✔		

Source: Carl Frappaolo, The Delphi Group, Boston * Depends on the product integrated

alized messages and formatting to intranet or extranet clients who identify themselves as they log in to the system.

Under this approach to Web document management, the content on the site is actively managed. Customers can receive customized home pages that feature their corporate logo and enhancements relating to the specific products and services they have purchased. For example, stock investors receive reports focused on their investments only. In each instance, the customized reports are created without human intervention.

This is one-to-one communication, the goal of most customer- or service-oriented organizations. And it's now cost-effective. The personalized documents aren't physically created and stored, but virtually created and provided through the integration of the compound nature of the Internet and the intelligent link management of the Web-exploited document management product. Products that provide this functionality include RightSite, PowerOffice and InSystems Technologies, Inc.'s Fandango.

Workflow

No matter which of the approaches you take, you need to consider workflow. Workflow plays a valuable role in controlling process logic in all environments. This ability to control process logic is combined with the document management system's control over content and integrity to enable mission-critical, document-centric business applications.

For this reason, many document management products offer integrated workflow capabilities. Those that don't typically have partnerships with workflow technology vendors. Within the Internet, workflow can augment the level of control provided by the document management system.

Within a Web-accessible environment, workflow could be used to automate the posting of a document to a Web site. For example, the final step of a workflow script that routed a policy change for approval would be the publication of the change to the Web-accessible repository.

In more sophisticated Web-enabled and Web-exploited environments, workflow scripts could be tightly integrated to specific documents, making the routing, editing, approval and submissions of documents part of the Web environment. Interaction with the Web client would trigger subprocesses, such as alerting a local sales person to a perceived need of a customer.

Such trends and needs would be determined based on process rules, including the use of key fields in an electronic form completed by a Web client. Or it might be based on heuristics through ongoing interaction with a Web-based customer.

Looking ahead

Today, the focus is Web-accessible and Web-exploited document management. But on the near horizon, file encryption techniques and electronic signatures will be widely accepted, and workflow-controlled processes will transform the way we work.

Until such time, there's unprecedented opportunity to explore how document management systems on the Internet can redefine a company's operations. I advise my clients to focus on the business process, determine the best manner to communicate and define the required mix of corporate personnel vs. the role of the customer. Start now to visualize the optimal environment to meet your needs, then determine whether technology will take you there. □

Look before you leap

Before you rush off to add document management to your Web site, take time to understand where you are today and where you want to go. The first step is to determine the nature of the documents that will be posted to the Internet as well as the business processes they support. You may be able to get away with a "simple" implementation if the documents fall into the following categories:

- **They aren't subject to security provisions.**
- **They're static in nature (not subject to or dependent on updates and changes).**
- **They're fairly straightforward in their content (don't contain formatted charts or tables).**
- **They're universally required by or applicable to all users.**

You may have to look beyond the simple file server capabilities that the Web initially provides. And for that, you'll want a document management system. Look for the following characteristics in that case:

- **You want to control access to the documents.**
- **You want to link them to various sources outside of the Web/HTML environment.**
- **You want to update the documents.**
- **You want to maintain documents in their native editors.**
- **You want to position the documents as part of a business process requiring bidirectional communication.**
- **You want to customize the format and content for each user.**

Frappaolo is executive vice president at The Delphi Group, a consultancy in Boston, and an authority on the technical and practical aspects of document management. He can be reached at cf@delphigroup.com.

Intellecte/ BusinessWeb	Livelink Intranet	NovaWeb	PowerOffice	Rite Site	Wisdom
Interleaf, Inc.	Open Text Corp.	NovaSoft Systems, Inc.	EZPower Systems, Inc.	Documentum, Inc.	Altris Software, Inc.
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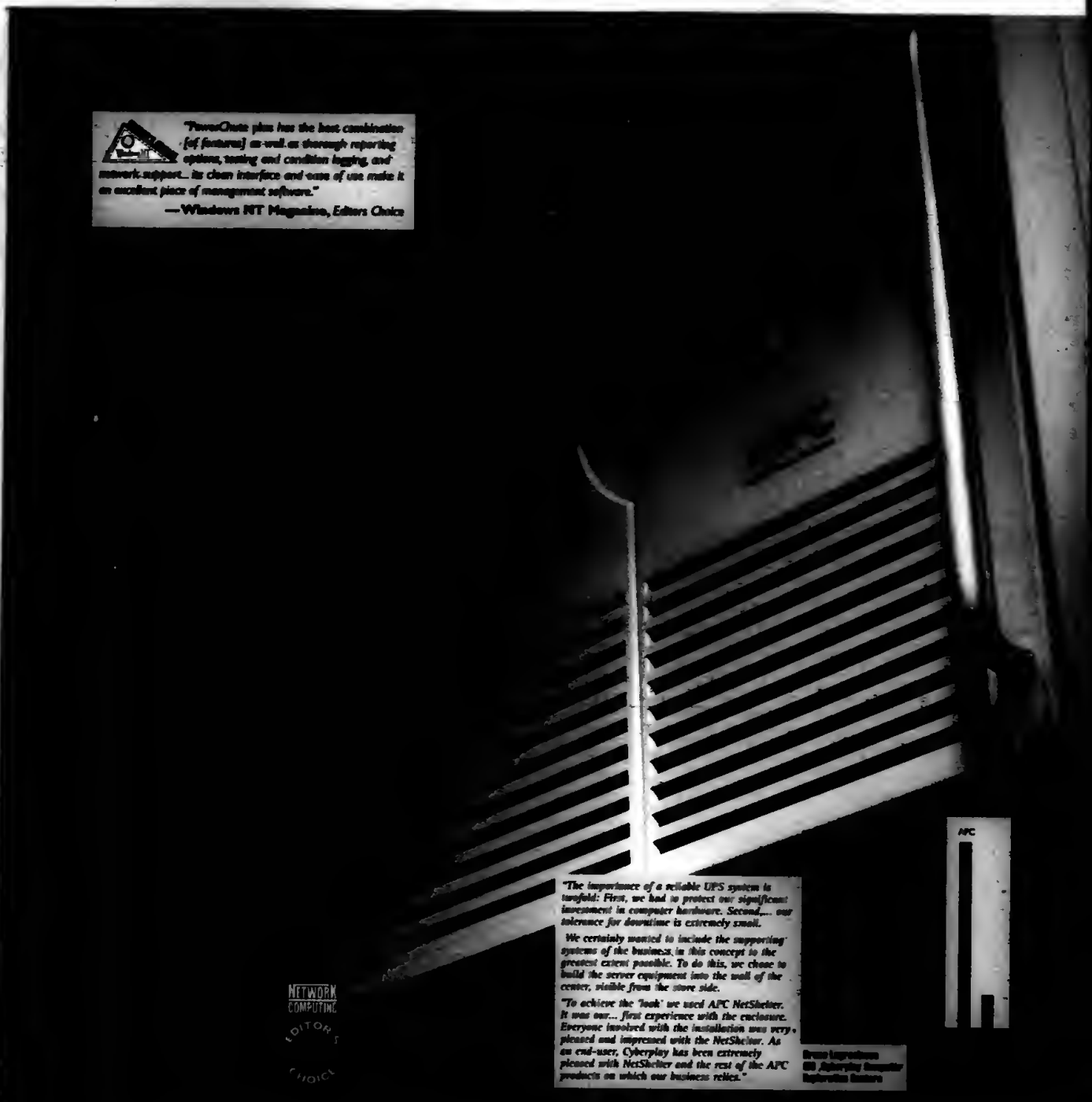
Introducing Rack-mounted
A NEW reason Smart-UPS® is preferred



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—Windows NT Magazine, Editors Choice

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NETWORK COMPUTING EDITOR'S CHOICE

PC

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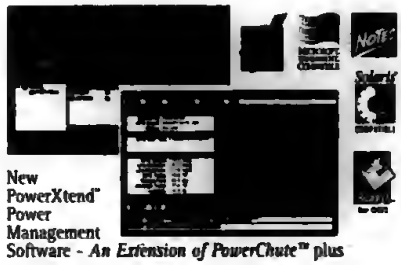
Remote Relay I/O Module — Integrates full UPS control into dry contact environments such as, PBXs, telecom management and building security systems

UPS Interface Expander — Provides two additional ports to facilitate safe system shutdown and advanced UPS management of up to three servers from one UPS. The unit is ideal for "server farms" or multiple operating system environments, since all three servers can be running different OSs.

Measure-UPS™ II — Provides monitoring of temperature, humidity and other environmental conditions through the interface for PowerChute® *plus*, PowerNet™ SNMP or Call-UPS II users.

PowerNet™ SNMP Adapter — Allows connection of your APC Smart-UPS or Matrix-UPS™ to an SNMP managed network for complete enterprise-wide UPS power management.



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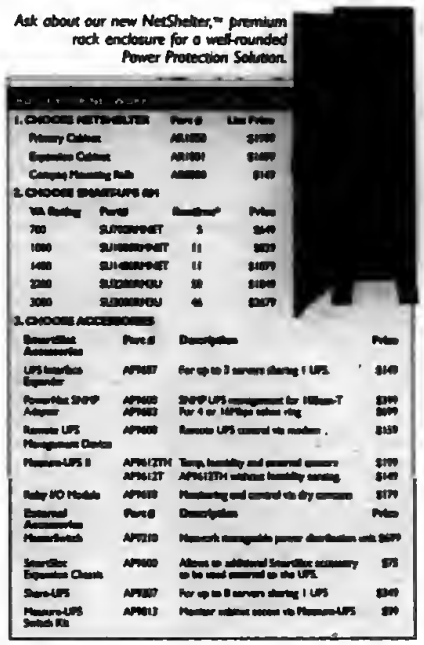

1. CHOOSE NETSHELTER	Part #	List Price
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Expansion Cabinet	AR3101	$1499
Compaq Mounting Rails	AR8000	$149

2. CHOOSE SMART-UPS RM			
VA Rating	Part#	Runtime*	Price
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1000	SUA1000RM2U	11	$829
1400	SUA1400RM2U	11	$1079
2200	SUA2200RM2U	10	$1349
3000	SUA3000RM2U	46	$2679

3. CHOOSE ACCESSORIES	Part #	Description	Price
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PowerNet SNMP Adapter	AP9606 AP9603	SNMP UPS management for Hilton-T For 4 or 16Mbps token ring	$399 $699
Remote UPS Management Device	AP9600	Remote UPS control via modem.	$159
Measure-UPS II	AP9612TH AP9612T	Temp, humidity and external sensors AP9612TH without humidity sensing	$199 $149
Relay I/O Module	AP9610	Monitoring and control via dry contacts	$179
External Accessories	Part #	Description	Price
MasterSwitch	AP9210	Network manageable power distribution unit	$699
SmartSlot Expansion Chassis	AP9600	Allows an additional SmartSlot accessory to be used external to the UPS.	$75
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PRODUCT REVIEW

Docs Open tolerates the Web; Livelink embraces it

By David Strom

PRODUCT REVIEW ▶
Document management tools

DOCS OPEN 3.5.1
Price: $1,495 per server, $349 per client; CyberDocs Web server: $20,000 per server. A 100-user, one-server setup would cost $56,395
Company: PC Docs, Inc. Burlington, Mass.
(617) 273-3800
www.pcdocs.com

OVERALL GRADE C-

LIVELINK INTRANET 7.2
Price: $75,000 for 100 users, includes one server license
Company: Open Text Corp. Waterloo, Ont.
(519) 888-7111
www.opentext.com

OVERALL GRADE C

CREATING AND managing documents via a World Wide Web browser is a lot like trying to fit a square peg into a round hole: You can do it, provided you know the dimensions of the problem.

Running a Web browser to surf an intranet or a series of ordinary Web pages isn't that complicated. But the browser implementations of two products I tested do only a fair job when it comes to handling common document management tasks such as checking out documents, arranging documents for a particular project or assigning workflow tasks.

I tested the full suite of products in PC Docs, Inc.'s Docs Open 3.5.1 and Open Text Corp.'s Livelink Intranet 7.2. Both products support a variety of Windows and Macintosh clients and various servers and operating systems. And over the past year, both have improved their support of users running Web browsers — in the interest of keeping up with the Internet explosion and to enable external workers to collaborate on projects. Docs Open tolerates the Web, while Livelink embraces it.

Adding the Web client makes for a complex document management stew, and I had lots of problems running both suites. I had problems switching back and forth between the Web and non-Web, or wide, clients to manage my documents. Both types of clients have very different interfaces, and neither vendor has found the right balance. The Web and wide clients have different functions and different screen layouts. The differences are sufficient enough that I recommend sticking with one client type in your daily use. Docs has the better wide client, mainly because it integrates into existing applications. Livelink has the better Web client because of its navigation ease.

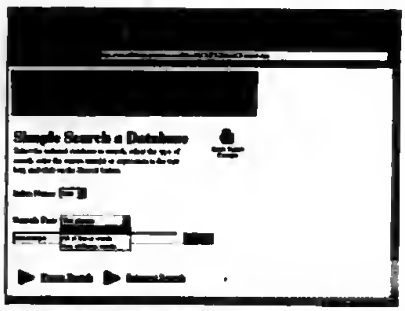
But client differences weren't the only issues. I had problems getting my network to operate the way these products intended it to, especially with my slovenly ways of network administration.

HABITS DIE HARD

Some of these limitations have to do with the nature of document management products. For users accustomed to creating documents and storing them willy-nilly on their private hard disks, it will take lots of training to understand and forego these bad habits. They will also need lots of money and time to get the products set up and working properly. Neither product is completely turnkey.

Both products deliver similar benefits, but they do so in very different ways. Docs Open is like a strict fourth-grade teacher who lays down very particular penmanship and work styles. In contrast, Livelink is more like a friendly uncle who gives you suggestions but allows you lots of room to maneuver and grow. Depending on their corporate situation, users may want the teacher's rigidity but know that most employees want flexibility.

Docs Open is a gatekeeper: You set it up so that users can't run applications such as Microsoft Corp.'s Word and Excel outside their systems. This means every time users try to open a file, they have to first go through Docs to track it and store it in the Docs library. Docs keeps track of who has rights to particular documents and when the documents were last edited. It supports a wide variety of common office productivity applications, including Word and Excel, Corel Corp.'s WordPerfect, Lotus Development Corp.'s AmiPro and 1-2-3, and various electronic-mail products. Users can set their browsers to start up these applications.



With Livelink, you can use a browser to perform tasks such as searching your intranet project

Livelink is focused more on tracking workflow. It doesn't prevent users from creating their own work and saving it to the hard disk, but it offers a systematic means of sharing information and enumerating project tasks. There is even a group called "My stuff" that can function as a to-do list.

Both products can run with a variety of network file servers, database servers and Web servers. Livelink has better documentation to tell you which versions and patches are required to run its product. Livelink doesn't support a Macintosh client talking to an SQL Server database, but Docs does.

INSTALLATION WOES

Installation of the products is also different. Livelink took several hours. Most of the work was tedious but not taxing. And the documentation outlines almost everything you need for both client and server installation. The only thing missing was a detailed explanation of the SQL client driver installation.

You need to use both the Web and wide clients to do the complete setup of Livelink; both products come into play at different times during the installation. For example, the Web client is the only one that can set up the initial document repository and other database parameters, and the wide client is the only one that can set up a workflow routine.

But this effort was almost trivial compared with the week it took me to get Docs up and running. I eventually had to get one of PC Docs' support engineers in my lab to help. Part of the problem was my own misguided network configuration, but another part was that Docs doesn't have any single way to install its client and server software. Each has many different pieces, and it's hard to get an overall picture of these pieces before you get involved in the process.

For example, the complete Docs server requires adding its own Windows NT-based service, three separate pieces of software that constitute its Web-based server called CyberDocs, and adjusting various NT file system and user parameters. I had to reinstall one of the CyberDocs modules several times before it operated properly. To be fair, most people purchase Docs from resellers who will take the time to do this setup.

Both products require touching each client on the network. Since I was using SQL Server, I needed to install the 16-bit Open Database Connectivity and SQL client drivers for Docs. And Livelink supported the 32-bit drivers. These drivers enable the Docs or Livelink wide clients to connect to the document repository stored on my SQL Server. If you already have SQL Server applications that require one of these drivers, you might have some long days dealing with this.

Obviously, one benefit of the Web client is that nothing besides the browser is required on the client side. I also found that Docs was very fussy about my computer-based clocks; I had to synchronize the clock of each client with my server, otherwise Docs would get confused as to when users updated documents.

My test configuration for both products was a Windows NT Server 4.0 running Microsoft's Internet Information Web server and SQL Server. Several clients were connected to this server via Ethernet, including Macintosh, Windows 3.1, Windows 95 and NT workstations. To test the Web client features, I used various versions of Netscape Communications Corp. and Microsoft browsers.

While installing these products, I found out how fast and loose I'd been with setting up my network. For example, I had created shares that spanned the entire hard disk of my servers (not good, because it can confuse products that try to control their own piece of the file system). My NT server didn't have any AppleTalk zones, not to mention it was running across several domains that didn't have proper trust relationships. And each of my NT servers had completely different user lists and rights, and clients had various network shares mapped to different drive letters.

DOCS DOCUMENTATION STINKS

With PC Docs, you have a shelf-full of printed manuals, a series of Adobe Systems, Inc. Acrobat Portable Document Format files and a bunch of tips and readme files to wade through. The support engineer who helped with my installation admitted all of this was confusing, and I kept getting lost in the various manuals during installation. PC Docs needs to clean this up and provide a clear road map. In contrast, Livelink's manuals are relatively straightforward, and the installation process is clear and presented sequentially.

The bottom line? If you can swing the organizational dynamics and get your users to work together, then these products can deliver real benefits. If you don't need the Web piece, then I'd rate both products higher. In any event, using either product isn't a casual commitment, as the ultimate five-digit price tags for 100 users will attest. □

Strom tests a variety of network and Internet-related products and has his own consulting firm in Port Washington, N.Y.

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Think big
Don't take small steps when you take on a big IT project, Jim Champy advises. Page 84

Managing

TRAIN *in* VAIN?

IS training isn't always the smartest course for better performance. Avoid some hard lessons, and get your money's worth.

By Joseph E. Maglitta

Chubb & Son's Don Garvey pores over his IT training calendar. "I often stare at this calendar," he says. "We haven't, I believe, been able to say that this stuff has paid off big-time."

INSURANCE giant Chubb & Son, Inc. is making a big investment in IS training, and sitting on Don Garvey's desk is a jam-packed training calendar that proves it: Netscape Communications Corp. boot camp. Java boot camp. Unix, electronic commerce — the works. Hardly a square is empty.

It's a sign that after years of chanting from consultants and gurus, information systems training is finally getting more respect and more resources. U.S. companies last year spent a record $7.1 billion on IS-related training and education, according to International Data Corp. (IDC) in Framingham, Mass.

Yet amid the boom, many IS and human resources managers say they aren't getting their money's worth from training. Even Garvey, assistant vice president of information technology at Chubb in Warren, N.J., admits struggling with the time and money consumed by IS training. "I often stare at this calendar," he says. "We haven't, I believe, been able to say that this stuff has paid off big-time."

There's widespread frustration and anxiety at the difficulty of measuring the value of training. Even consultants and trainers privately say the huge time and expense involved in IS training may be misplaced; mistimed or misguided.

"Eighty [dollars] of every $100 of IS training is a complete waste," says Leilani Allen, a *Computerworld* columnist and former IS director who teaches 2,000 people per year at Tenex Consulting in Burlington, Mass.

"Somebody decides to learn object orientation," Allen says. "Then the project they were going to work on gets delayed. In three months anything that person learned is gone. So we retrain. The whole thing becomes a never-ending series of failed expenditures."

Others say IS training has become the latest silver bullet that can't possibly solve all the IS and organizational issues it's supposed to. Millions of IS training dollars are wasted in areas better handled by improved management, traditional college courses or longer-term professional development.

Swelling training budgets have stepped up pressure for IS to show a clear return on investment (ROI). But few companies measure training's impact beyond simple surveys of students or other elementary measures. Even fewer can link training with real business benefits.

"It's tough to even offer enough computer courses, let alone carefully analyze their effectiveness," says John Wagner, training and development director at Metra, the Chicago-area commuter rail system. Like many managers, Wagner says he lacks the resources and metrics to do rigorous value analysis.

"Most of our calculations are pretty subjective and basic," says Ann Van Sant, assistant director of information services at Principal Financial Group in Des Moines, Iowa. But, she says, "we don't have any accurate ways to show that performance went up 30% as a result of training."

More than a dozen sessions at the American Society for Training and Development's annual technical training conference tackle the topic. Most new methods try to filter out other business variables and link training with corporate goals. Still, you may never know if the training is worth it, says Linda L. E. Reino, chief information officer at Universal Health Services, Inc. in King of Prussia, Pa. Some benefits are "intuitively obvious," she says. "But soft skills are tougher."

Even if a Geiger counter for measuring training payback was invented, it would be as silent as an empty classroom in the following situations:

• NEOPHYTES WRITING CHECKS

Continued decentralization has put millions of training dollars into the hands of technological neophytes, says Christianne Moretti, training and education research manager at IDC in Toronto. Many of those newbies may have a hard time weeding out weaker instructors at training firms that have hired more teachers to keep up with their 15% or 20% annual growth.

So check references, Moretti says.

Companies are understandably tight-lipped about IS training gaffes. But tales are trickling out. One large insurance company reportedly came close to signing a major training contract, even though the business unit manager didn't know the difference between C and C++. The error was caught in time.

IS managers and trainers say less dramatic but potentially costly gaffes are common.

• WRONG REASONS

Experts say IS training generally fails when managers throw around training dollars. It's especially a problem at companies that have found training religion but badly manage spending. "You think, 'I'll find a class and send my people,'" says one IS director who requested anonymity. "They'll be happy, and I'll check it off the list.' It's one of those things that managers are supposed to do."

"Many training programs are . . . ritual fire dances," says Dick Dooley, a veteran IS director and educational consultant at the Society for Information Management's leadership program.

Top executives share the blame. "The CEO comes back from a conference all hopped up and [says] all 4,000 employees need two hours of customer service training," says Susan Goldberg, president of Northeast Training Group, Inc. in Chestnut Hill, Mass. "It's a tremendous waste of money, time and effort."

Trainers also can pose problems. Many resist ROI analysis, says one IS director. More often than people admit, "tech trainers push people into classes," says a 25-year IS and training veteran. "They're trying to justify their budgets and keep the per-pupil cost down. They rationalize it by thinking that almost any training is good, so more is better."

• POOR DELIVERY

IS managers at the University of Miami in Coral Gables, Fla., decided to try computer-based training as a natural way to teach IS staffers application development, networking and other key topics. Reviews were mixed.

Operations staffers loved the computer training, says CIO Lew Temares, but high-level IS workers were another story. "They were at a computer all day and didn't want to spend their spare moments on another computer when they could use that time to answer phone calls and talk to people."

Fortunately, Temares says, the cost of the misstep was "modest."

It was far more costly to the mega-retailer that spent millions to build a nationwide satellite network to teach technical and management subjects. "You just go into a room and watch television with no human facilitation," says one insider. "People hate it."

The moral: Match material to the medium, and don't try to teach customer service from a CD-ROM, for example.

• STRONGER MEDICINE

Training connected to a specific project or initiative often is most effective. But the opposite also can be true.

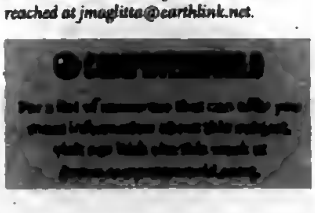
Some critics say money for quickie skills training — especially complex technical areas such as IT architecture and network security, as well as "softer" topics such as leadership — would be better spent on more intensive university or executive development programs.

"Training is for dogs," says Ed Gordon, a psychologist and president of Imperial Corporate Training and Development, Inc. in Oak Lawn, Ill. He says "cheap, lousy, short-term, sporadic and lazy on-the-job training" is no substitute for planned professional development.

Garvey agrees: Tough topics require more than quick-and-dirty workshops.

For example, as part of a two-year effort to get 65 company locations World Wide Web-ready, Chubb needed more Unix expertise on its 800-person staff. "We were not a Unix shop, so we decided to get one individual up to speed so he could support and grow this stuff (intranets, TCP/IP connections, etc.). But learning Unix in that kind of detail is not trivial. It's not a one-week thing, and you're good to go." □

Maglitta is a freelance technology and business writer in Cambridge, Mass. He can be reached at jmaglitta@earthlink.net.



TRAINING TIPS

• GO JUST-IN-TIME TRAINING. It's often best to link training to a specific project and as close to roll-out as possible. "We don't do just-in-case training," says Peggy Welsh, IS training manager at Pacific Bell in San Ramon, Calif.

• CREATE A CONFERENCE. Do you want low-expensive training and guaranteed quality? Do it yourself. Earlier this year, Principal Financial Group hosted two day-long conferences for 1,400 local IS workers in Des Moines. Attendees heard outboard experts speak on eight topics, including the Internet and negotiating. Cost? Almost nil, of sending people away to training, says Ann Van Sant, assistant director of IS.

• MATCH MEDIUM WITH THE SUBJECT. Use computer-based training for teaching technical basics or refresher courses. Use classrooms for coaching, interacting and as a laboratory for discussing "soft skills," says Diane Walters, IS training manager at Southwestern Bell in St. Louis.

• BUILD TRAINING IN TO THE PURCHASING PROCESS. "Make them specify right on the procurement form how this person will be trained," says Leilani Allen at Tenex Consulting. Kick butt if the "trainee" becomes a help desk pest.

• TRAIN ON COMPANY TIME. Think twice about asking people to train on their own time. Though it's common practice, workers often get resentful and tired, says Fred Kurz, human resources manager for IS at Pacific Bell. For that reason, the utility and others are dropping the practice.

• USE HELP DESK TRAINERS. Use your technical support staff to give on-the-spot education, says Linda L. E. Reino, CIO at Universal Health Services in King of Prussia, Pa.

RESOURCES: IS MANAGERS' BOOKSHELF

Extranets: The Complete Sourcebook

By Richard H. Baker; McGraw-Hill, New York; 556 pages, $39.95 (paperback)

BAKER AND MCGRAW-HILL aren't exaggerating in labeling this a "complete" guide to developing an extranet, a private network based on World Wide Web standards.

Baker, author of 15 computer books, outlines the benefits of an extranet strategy, how to execute it and how to demonstrate its value to upper management with hard numbers.

Baker's chief message: Emphasize how much the company will save, not how much it can add to its revenue base. Find out how much users spend on communication and information gathering, to gain valuable "before" data to compare with your breakdown of "after" expenses. An extranet helps reduce the cost of customer service and improves it to keep customers coming back. "In the end," he writes, "these may prove much more profitable than direct income-producing activities on the Web."

Baker also delves into security. Chapter 13, "Developing a Security Policy," is a must-read. It gives you tips on how to sell security to upper management and users without resorting to scare tactics. — *Rick Saia*

Innovation: Breakthrough Thinking at 3M, DuPont, GE, Pfizer and Rubbermaid

By Rosabeth Moss Kanter, John Kao and Fred Wiersema; HarperBusiness, New York; 192 pages, $24 (hard cover)

COMING UP with good new ideas is easy. Doing something useful with them is the hard part. That's the theme of this book, edited by three well-known champions of corporate change.

The book begins with a roundtable discussion by the three editors, followed by case studies of innovation at Du Pont, General Electric, Pfizer and Rubbermaid. Readers have to tackle the entire book to get to the winning strategies, because there's no summary of findings. But that's pretty easy, given the book's generally breezy, straightforward style.

As the case studies make clear, innovation is a slow, painful process. For example, at Du Pont it takes 3,000 raw ideas to produce a dozen major projects, which in turn produce only one successful entirely new product.

But successful companies do share some best practices. They include creating cross-functional teams to share knowledge across different parts of the organization; communicating the need for innovation and rewarding those who do innovate; and involving customers in product design. Another key skill: Knowing how to kill an off-track project without destroying the morale of those who have worked on it for months or years.

Although the book doesn't quite deliver on its promise of "instant access" to cutting-edge strategies, it's worthwhile reading for anyone trying to change an IS organization or an entire business. — *Robert L. Scheier*

Secure Computing: Threats and Safeguards

By Rita C. Summers; McGraw-Hill, New York; 688 pages, $59.95 (paperback)

THIS BOOK pulls together all aspects of computer security from someone who has been there. Summers, recently retired from IBM, has 30 years of experience in software design, development, research and management.

Summers wrote *Secure Computing* mostly for systems designers and developers — flowcharts and equations abound — but also for security practitioners and information systems managers who must set up, implement and maintain security programs. Case histories and real-world examples are interspersed with the techie explanations in the text.

Part I describes the societal and technical forces that affect computer security, and lays bare the consequences of an insecure network. Summers describes

some of the ethical and people issues involved in securing a network and U.S. government policy regarding cryptography. Part IV of the book will probably be the section of most interest to IS managers. It covers the how-tos of managing a security project — administration controls, physical security, risk analysis and systems auditing. Summers says there's no consensus as to the best information security strategy. She advises that managers consider the basic goal: aligning computer security with business needs.

Part IV includes requirements for effective security management. They include having senior management's ear when it comes to implementing security policy and technology, and having project support from users. Summers also offers different types of policies and security structures that IS managers might find useful — Should you tap a chief security officer for your firm? Departmental security officers? Who will set and implement security policies? What's your contingency plan? *Secure Computing* may help you decide. — *Roberta Fusaro*

CONFERENCES

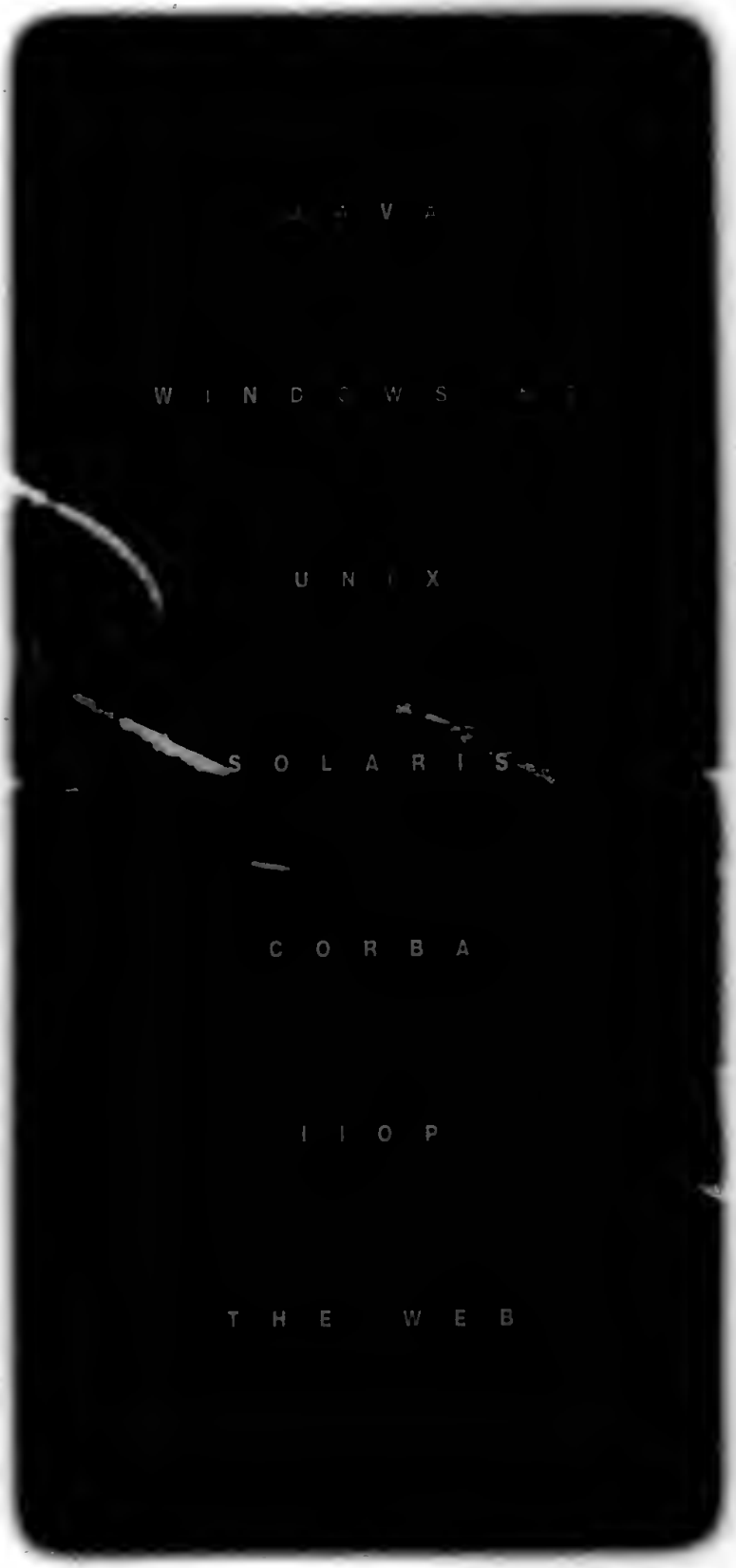
The following are some key IT conferences being held in September. For a complete list, see our Events Calendar at Computerworld's Web site (www.computerworld.com/events).

→The 1997 Technology Performance Management Conference & Expo (formerly the Computer Training & Support Conference); Sept. 14-17 at the Opryland Hotel in Nashville. Focus is on training your users. Conference themes include new skills for workplace technologies, performance-enhancing training techniques and interactive technologies for training and support. Call Softbank Forums at (800) 969-9848. Web site: www.sbforums.com/tpm.

→Interchange '97 (the annual conference of the Society for Information Management); Sept. 28-Oct. 1 at the Westin Hotel at Copley Place in Boston. This conference, geared toward upper-level information technology executives, will focus on the leadership, information management and technology issues that companies face. Contact SIM at (312) 644-6610. Web site: www.simnet.org.

→IT Forum (DB/Expo, Unix and Windows NT Expo, Internet/Intranet Expo); Sept. 15-19 at the Jacob Javits Convention Center in New York. Learn the latest about using Windows NT and Unix, systems management, networking and the Internet, IT integration strategies and application, database and Web development. Contact Miller Freeman Group USA at (800) 232-5976. Web site: www.itforum.com.

→Intranet/Extranet Conference and Exposition: Sept. 23-25 at the Moscone Convention Center in San Francisco. Check out the latest in Internet products and get Gartner Group, Inc.'s take on how Web technologies can help your organization. Contact Gartner at (888) 359-6266. Web site: www.expocan.com.



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JIM CHAMPY

IT PAYS TO THINK BIG

Common wisdom equates big IT projects with big risk: the bigger, the riskier. My view is the opposite: Anyone who follows a safe-feeling methodology of "build a little, test a little" is like a bridge contractor who tries to span a river by gluing bricks together from one bank to another.

Without a bold, overarching strategy, cautious incrementalism may actually invite collapse. You wind up creating bits and pieces that don't fit together. But what really imperils big projects are human failings: a lack of leadership and discipline to keep them in focus.

When you examine the great project craters in IT — Greyhound's route-handling and ticketing system, the Confirm CRS computer reservation system and the London Stock Exchange's Taurus share-trading system — some of the common denominators were scale and complexity. But complexity also abounded in some great successes: American Airlines' Sabre reservation system, Morgan Stanley's TAPS architecture for settlement of stock market trades and the Singapore stock exchange's TradeNet project, which amounted to the electronic underpinning for that nation's entire brokerage system.

I'm not a technologist, but I believe IT projects founder from the same failure factors that haunt all forms of business change. In the cases of Greybound and Confirm CRS (a failed venture of Hilton Hotels, Marriott, Budget Rent a Car and AMR Information Services), the customer focus got lost. In the abandoned $120 million London Stock Exchange project, those who were threatened with job loss ultimately sabotaged it.

With such horror stories, technology executives are understandably paranoid about big IT change programs. But things such as people skills, behavioral issues and links to other parts of the company often get overlooked when a major change program is implemented a little at a time. I recently saw a major systems effort that had interfaces to 18 other internal systems and external connections. Each was separately under development and proceeding at a deliberate pace. Each seemed safe enough in the build-a-little mode. But no one was paying any real attention to the integration of the whole. I fear its future value may be severely limited in cross-functional uses.

Small projects also are more vulnerable. "Corporate antibodies" spring into action against piecemeal change. But a big, well-run, well-focused, we're-all-in-this-together effort is very hard to kill.

So what does it take to make big change successful? Here's my prescription:

1. AMBITION Leaders set the agenda for big change, but all must understand the necessity for boldness. In Singapore's TradeNet project, there was no other choice. The existing system didn't work, and everybody knew it. But creating ambition without an urgent need is a challenge to leadership and vision.

2. SCALE/SCOPE Simply put, incremental actions achieve nothing.

3. OUTSIDE-IN THINKING This must be the framework for all technological innovations in a world of ever-increasing competition and customer choice: Will it add value for the customer? Will it make the experience of doing business with us more pleasant and compelling?

4. RESULTS-DRIVEN This isn't "build a little, test a little." Short-term wins come from measurable performance improvements in such areas as faster sales fulfillment, quicker inventory turns and the like. The intent is to build momentum to keep the project on track.

5. MANAGEMENT ALIGNMENT The London Exchange program was sunk from within. But in successful transformations, executive teams bring disagreements to the surface, resolve them openly and commit to a common goal.

6. CHANGE AGENTS Driving change isn't just the responsibility of the president or division general manager. People with a shared commitment fan out across the organization to build support.

7. AUTHENTIC COMMUNICATIONS Pep rallies and memos are fine, but in big change projects, communication is two-way, not broadcasting. Employees have to believe in their gut that the change is worth the effort. That's when cynicism must be rooted out by total honesty.

8. SHIFTS IN CONTROL/POWER Expect that the power to make decisions will shift from the top to the front line in projects in which the focus is on the customer.

9. DISCIPLINED IMPLEMENTATION Projects can't wander off onto tangents, nor can they drift from inattention.

10. CONTINUOUS The game isn't over when the system is installed and some early results look promising. It's leadership's task to see a change project brought to completion, embedded in the culture and refreshed as needed.

Of course, a risk analysis before any large project must weigh potential benefit vs. danger. But the upside of big risk — in focused large-scale IT projects — is big gain. □

Champy is chairman of consulting at Perot Systems Corp. in Cambridge, Mass. His Internet address is JimChampy@ps.net. His newspaper columns are syndicated by Tribune Media Services.

f.y.i

Stealth companies: The ultimate business weapon?

[illegible] with a half-dozen giants that want a piece of your action. The stealth company occupies a role in the value chain to excite back-office processes, customer service front office, financial advice and banker. Each member has incredible economies of scale and expertise in its area. The link between them: a low-cost Internet-based infrastructure that's far cheaper to run than conventional leased lines.

The result is a flexible, innovative enterprise that can football an established player aside as you become its business ends are only half your own. Worst of all, you can't take action against the stealth firm because its loyalty is a [illegible]. Is this for real? It is, says Raj Sabherwal, director of operations at IBM Global Services Consulting Group in Sleepy Hollow, N.Y. The stealth company, uncovered in two studies on the future of outsourced corporate computing that were done for IBM's consulting clients, is now attacking the life insurance industry in a large European Union member country. Sabherwal says the business model is outstanding: stealth companies could reshape industries. If a stealth firm keeps improving its operations, products and prices, it can "leave a blinding trail behind. No one will catch them because they can't see them."

Sabherwal says the company has sworn him to secrecy as to revenue and operations, but he offered these details:

■ The stealth company has about 50 employees, but its various managers who are experts in [illegible] technology, negotiating and working with [illegible] insurance agents. It outsources the network, provides the [illegible] stores the data.

■ The corporate partners are large, [illegible] of brand specialists in financial asset management, policy [illegible] actuarial analysis and reinsurance.

■ The public face of the stealth [illegible] are independent [illegible] data, [illegible] and that offered the businesses.

■ All business partners [illegible] large [illegible] the stealth [illegible] area.

[illegible] After [illegible] After

Customers can submit their orders directly on the Web, then go back and shop for more

The GiftFinder sorts through hundreds of items to deliver a personalized catalog

The Sharper Image Web site, built with WebObjects software, gives customers several ways to shop

How The Sharper Image is making over 1,000,000 visitors a day feel like they own the place.

For The Sharper Image, the Web presented an exciting opportunity to translate the success of its intriguing, gadget-filled catalogs into a cost-effective new medium capable of reaching millions. But how to do it and keep its brand intact?

Using WebObjects' award-winning development platform and prebuilt business objects, The Sharper Image was able to create a dynamic online catalog in less than 30 days. With catalog items stored as separate objects in a legacy back-end database, updating information was fast, easy, and in some cases, automatic. Next they used WebObjects™ to develop the GiftFinder which generates a customized catalog that narrows the list of potential gifts from nearly 800 to a few appropriate selections. The results have been nothing less than spectacular, with traffic rocketing to over 1,000,000 visitors per day.

How can your business match these results? With tools that allow you to develop once and publish anywhere. With prebuilt objects that slash development time. With an environment that leverages your legacy systems to new heights of productivity. With WebObjects, of course.

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In Depth

A LINE IN THE SPAM

HAL MAYFORTH

BY LESLIE ...OFF

IS can learn a lot from watching the slugfest between those who send junk E-mail and those who despise it

Scott Hazen Mueller broke out in a sweat when his name and return address were forged on a bulk electronic-mail message to members of Congress that threatened to wipe out all the information stored on congressional servers. He faxed copies of the E-mail, along with an explanation, to the U.S. Secret Service. He expected a horde of federal agents to descend upon him at any moment.

Instead, he got a good-natured response. "They weren't too concerned," he recalls. "No one was threatening the president."

It wasn't the only time Mueller had been the victim of a smear campaign intended to undermine his credibility. As president of the Coalition Against Unsolicited Commercial E-mail (CAUCE) and moderator of the spam.abuse.net newsgroup, Mueller has taken a highly visible stance against online junk mail, popularly known as spam. Spammers have forged his name and return E-mail address, as well as those of CAUCE, on several solicitations for money to support fictional antispam efforts, and his server has been used as a spam relay point.

"They want to diminish our credibility, harass us and intimidate us," Mueller says of the pro-spam mercenaries. "These guys are a real fun bunch."

The incident illustrates the tenor of the debate between the antispam and pro-spam communities over unsolicited commercial E-mail. In some quadrants of the Internet, it has become downright malicious. Both sides are guilty of forgery tactics and E-mail bombing, or crashing servers by overloading them with E-mail. Both sides have made statements ranging from nasty to near-slanderous in spam-related newsgroups.

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SPAM

CONTINUED FROM PAGE 87

At the most rudimentary level, the conflict is one of 'net purism vs. 'net commercialism. In the larger scheme of things, spam raises questions about the balance of privacy vs. free speech and free enterprise. And as the debate reaches a fever pitch — lawsuits have been filed against notorious spammers such as Sanford Wallace's Philadelphia-based CyberPromotions, Inc., and three bills dealing with spam are making their way through Congress [CW, July 21] — corporate information systems organizations will be forced to draw their own line in the sand.

SPARRING ON SPAM

In one corner, the antispammers contend that spammers use tactics that abuse their personal privacy, such as harvesting E-mail addresses and distributing them without consent; ignoring remove-me-from-your-list requests or making it impossible to send such requests; and employing messaging software that penetrates spam filters. They say spam wastes their time, constitutes theft of disk space and bandwidth, frequently contains offensive or fraudulent material and is an assault on the soul of the Internet.

"They are out there extracting addresses in real time and continually adding them to databases," says Mueller, who's also vice president of engineering at Whole Earth Networks, Inc., an Internet service provider in San Francisco. He notes that within a day after a single posting to a newsgroup from his office account, one of his staff members was spammed three times. From Memorial Day to mid-July, spam in Mueller's moderator's account jumped from eight per day to 18 per day. "If the current growth trend continues," he says, "everyone will go back to watching TV."

In the other corner, the pro-spammers argue the First Amendment, claiming the right to use what they see as public information. They allege that many Internet users enjoy receiving unsolicited offers in their E-mail boxes. Bulk E-mail is an efficient, inexpensive way to advertise viable products, yielding a high return on investment. It levels the playing field for small entrepreneurs, enabling them to compete against the big dogs.

"Your E-mail box is like cable," says David Silver, also known as Mr. E-mail, who sells spamming software and services (see related story above). "You have all these channels for conversation by people who want to chat with each other, and once in a while you get a commercial." Silver says he has made up to $12,000 per month selling spamming software and services on behalf of clients who range from vitamin salesmen to a priest who sends out a "Save yourself" message.

Corporate IS organizations are caught somewhere in the middle of the ring. They must mollify users who complain about receiving spam but who would object to their incoming mail being monitored. Moreover, they must ensure that renegade corporate citizens don't treat their E-mail accounts like they do the office copier: there for personal use after 5 p.m.

"While not widely known, we would anticipate that a certain amount of spamming actually originates behind corporate firewalls," says Matt Cain, vice president of workgroup computing strategies at Meta Group, Inc., a market research firm in Stamford, Conn. "It raises the privacy issue for corporate IT."

At the same time, IS must appease the sales and marketing departments, which are eager to leverage the list-management potential of their corporate World Wide Web sites. And on the operations side, IS must preserve bandwidth and protect corporate E-mail servers from being used as spam relay sites.

What's a network administrator to do in the age of spam? Internet service providers and direct marketing companies, which all have a vested interest in the spam debate, offer IS a couple of different models to help establish policies that prevent incoming and outgoing spam.

THE IN-BOX

Antispammers such as Mueller advocate blocking all incoming promotional E-mail. Direct marketers, such as Eric Zellig, vice president of interactive media at American List Council, Inc. in Peterborough, N.H., suggest blocking only promotional E-mail that users didn't "opt in" to receive. Both tactics would require administrators to monitor content. That's why Internet service providers such as Netcom On-Line Communication Services, Inc. in San Jose, Calif., haven't put universal blocks on bulk E-mail, even though it generates customer complaints and can tie up server bandwidth.

"A very fine line is emerging between people's privacy and the fact that they don't like spam," says Craig Clemens, Netcom's vice president of operations. "[Internet service providers] are not in the business of editing content, so we've focused on performance, in terms of minimizing having our servers used as pass-through relay points."

The company has procedures that let its systems administrators refuse delivery of bulk E-mail destined to pass through its servers, which forces the originator to reroute it through another source. "It's a preventive measure to keep us from getting in a situation where mail starts to pile up on our servers," Clemens says.

In lieu of blocking, IS should educate users on how to minimize spam by invoking the filters and cookie warnings built in to Web browsers, says Regina Brady, vice president of interactive at Direct Media, Inc. in Greenwich, Conn., a large direct marketing list manager and broker. "I'm out on the Web all the time, and I'm not getting spammed," Brady says. "I think it's due to my own diligence."

Brady may just be lucky. While filters can help minimize spam — and IS can employ filters at the firewall level as well — spammers are technically adept at getting around them. Procedures must be reviewed on an ongoing basis, Clemens says.

THE OUT-BOX

Cain says monitoring users' outgoing E-mail creates the same privacy concerns as examining their incoming mail. He recommends that corporate E-mail policies and procedures include an antispamming clause that acknowledges a general expectation of privacy but reserves the right of administrators to monitor E-mail when they suspect abuse.

Administrators also should play a role in setting policy for legitimate outgoing E-mail from marketing and sales departments, because they will be the ones dealing with the backlash from customers who respond to direct marketing material they may perceive as spam.

If companies are collecting E-mail addresses and other demographic data from Web surfers who register at their sites, an advisory of that fact and an opt-in option will avoid thousands of flames from disgruntled 'netizens, who are increasingly unlikely to distinguish targeted promotions from bulk spam.

American List Council's Zellig says even when companies have given site visitors an opt-in option, each piece of promotional E-mail should include a prominent opt-out option.

"Even when you've secured their permission to E-mail them, with each message you need to inform them what list they are on, how they got on it and how they can get off it," Zellig says. "Then, 99% of them won't get mad. But even when you do that, you are not going to make everyone happy." □

Goff is a freelance writer in New York.

In DEFENSE of SPAM

David Silver, otherwise known as Mr. E-mail, is a spammer and proud of it. His company, Mr. E-mail in Newport Beach, Calif., sells E-mail address lists, software and services. He has no intention of caving in to the antispam pressure. "I'm ready to keep going, to use my freedom for exactly what it's given to me for. I have an answer for every complaint there is against spam," Silver says. Spam-haters, beware. Here's what he has to say:

CW: What gives spammers the right to harvest E-mail addresses and use them for their own commercial purposes?

SILVER: This is where I totally feel like [*Hustler* magazine founder and publisher] Larry Flynt. If I were in a public bathroom and there was a phone number on the wall, or I look it up in the White Pages, I have the right to call that number because it's public information. So is the E-mail address that's posted anywhere on the 'net. If I had to break in with a password to get that address, that would be illegal. But what I do is the same as opening the phone book. If someone doesn't want bulk E-mail, they shouldn't place their address anywhere that's publicly accessible, whether they're registering for shareware or entering a sweepstakes.

CW: Spammers have been known to use some unethical tactics to send their messages.

SILVER: But when antispammers receive even one bulk E-mail, they retaliate in the very ways that they say they're against.

They commit numerous offenses, like sending you a fax without a broadcast number at the top. They'll bomb the server that sent the mail or that your Web site is on. They will bomb any connection they can find with complaints. They use illegal blacklists on the 'net for the obstruction of free trade.

CW: That seems to be part of the backlash because their attempts to be removed from E-mail lists don't work, or they aren't offered an opt-out option.

SILVER: That's because when you offer that option, it's no problem for people to bomb the server. It's more of a burden to provide a [return] E-mail address than it is not to. I provide a toll-free phone number for removal requests, and I had to bulletproof it because people would call over and over again.

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IT Careers

IS professionals are finding it tougher to market their own creativity – and when they do, the personal toll can be high

Arrested DEVELOPMENT

By Steve Alexander

A DECADE AGO, many information systems employees tried to develop their own commercial products in their spare time in hopes of getting rich. Today there appears to be fewer of those entrepreneurs, and it's tougher to turn personal creativity into spare cash.

Analysts say that's because of the long hours many IS employees are working for their employers — and the improved financial rewards some are receiving — as a result of well-publicized IS staff shortages.

"The demand for technical talent is so great, and as a result, the salaries are so high, that the need to work on the side is not as great. So there's not as much of it going on," says Richard Reck, a partner at KPMG Peat Marwick in Chicago, who heads the Midwest software and information services practice.

IS contractors have even less reason to dabble on the side, Reck says. "If you can earn $100,000 a year [as a contractor], how much more than that do you need to earn to make the entrepreneurial risk worthwhile?"

MATURE INDUSTRY

Changes in the PC software industry also have made it difficult for independents to break in with moonlighting projects.

"It's getting hard for an independent developer to sell software because the industry has matured," says Ken Adams, a Toronto software developer who moonlighted for more than 10 years before introducing his own product in 1992. "Ten or 15 years ago, anyone who could develop PC software in the basement could sell it, but now it's hard to compete with Microsoft."

The time demands on IS moonlighters also can be overwhelming, says Joe Waynick, vice president of technical support at Union Bank of California's data center in Los Angeles.

NO SPARE TIME

Waynick was a systems programmer at the bank in the early 1990s when he tried to develop consumer financial management software in his spare time. But he gave up the moonlighting because it consumed his nonworking hours.

"It was just too much to take on in addition to my full-time job," Waynick says. "By the time I was in a position to devote the time needed, the market had changed. Competing against Quicken and a new Windows version of Managing Your Money would have been difficult."

Adams, a contractor in the IS department at the Royal Bank of Canada in Toronto for 12 years, carried his moonlighting project — a software debugging tool called "Xtrace" for assembler and Cobol mainframe languages — through to fruition. But it involved lots of heartaches.

Adams' superiors at the bank didn't pose a problem. They signed off on the moonlighting project because it clearly wasn't related to Adams' contract work at the bank, which since 1982 had involved developing and supporting an online banking system. In fact, the bank became a customer, in effect acknowledging that Adams was sole owner of his product.

Adams also encountered no copyright complications. He didn't bother to copyright his product, figuring it would be difficult for anyone to imitate it.

Many IS moonlighters take the same tack, knowing that the

Arrested development, page 94

Who owns your creativity?

Most often, it's your employer. But there definitely are ways YOU can profit from your creative drives

By Lina Fafard

You're a creative software designer, and you have an idea for a breakthrough product. You know it's going to be big — a standard-setter and a moneymaker.

And you've just accepted an offer for a new job that's in an industry unrelated to your breakthrough concept. You plan to work on your concept after-hours, away from the office. So, just what are your ownership and resulting financial rights?

One of the most contentious areas of software design is the gray area of intellectual property/copyright law known as "works made for hire." Laws that cover patent and trade secret ownership are just as troublesome. But understanding basic concepts and rules can help you own and benefit from your creativity — as long as you meet the required legal standards.

When the work you do on your concept isn't within the scope of your employment, what legal tests must you meet to "own" your work? Here's the Institute of Electrical and Electronics Engineers, Inc.'s position:

"We support enactment of legislation to set a Federal standard that would prevent an em-

Creativity, page 94

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Arrested DEVELOPMENT

CONTINUED FROM PAGE 92

law automatically affords them some protection even if they do nothing. Under U.S. law, software is automatically copyrighted when it's created.

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Adams also didn't suffer for lack of financial rewards. Since leaving the bank three years ago, he has run his own software development firm, BankNet Technologies, Inc. in Toronto, which has more than $5 million in annual sales.

Adams' chief difficulty was the hours the moonlighting project robbed from his personal life.

TIME COMMITMENT

"This was a weekend and late-night project, and I spent an incredible amount of time on it. If most people knew how much work it is, they would not embark on it," Adams says. "I would do it again, because now I know how to approach it. But the advice I'd give to others is, get into a relationship with someone who's been there before."

The experience taught Adams three things: Programmers usually aren't good marketers, it's difficult for one person to provide 24-hour technical support, and writing documentation is time-consuming.

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Another moonlighting IS worker, a former programmer at a financial services company in California who asked not to be identified in connection with his pet project, says about three years ago, he and three other programmers developed a product for their employer on their own time, outside the scope of their employment. The arrangement, although unusual, was agreed to by company executives who wanted low-cost prototype software produced within six months for a new business venture. The four developers got one-time payments equal to about 10% of their annual salaries.

The financial rewards weren't great, but the former programmer says the moonlighting project enhanced his career by helping him move into management.

"There's no question the outside development project was a big contributing factor. We had to pitch this idea to several key business executives and the head of IS, which gave us an opportunity to showcase our talents," he says. □

Alexander is a freelance writer in Edina, Minn.

CONTINUED FROM PAGE 92

ployer from demanding an assignment of rights in an employee's invention unless it falls within the definition of an "employment invention." An employment invention is an invention produced by an employee during the term of employment under the following circumstances:

- As a result of his or her normal or specifically assigned duties.
- Based on nonpublic information acquired from the employer.
- Where the employee is in a special position of trust with respect to the employer.

The bottom line

Don't expect your employer to bend its standard agreement much — unless you have a track record of developing breakthrough and highly successful products. After all, if it bends its contract for you, it sets a precedent for having to bend it for all subsequent hires.

But here are a few concepts that, if included in your employment agreement or contract, can give you room to negotiate on behalf of your work:

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— Lina Fafard

Each condition above has gray areas in which you and your employer can disagree. That's why it's important to obtain up front written agreements that explicitly exclude your developing your concept as a work made for hire, as long as you absolutely don't rely on employer resources.

COPYRIGHT

You can't copyright your work if you are an employee and you use your employer's resources to create your work on the job — within the scope of your employment. You have created a work made for hire.

Similarly, if you are a nonemployee and have created a specially ordered or commissioned product — and you and your employer have agreed in writing that you are creating a work made for hire — you can't copyright your work.

Otherwise, you can own the copyright for your work.

TRADE SECRETS AND PATENTS

If you created your work during working hours and used your employer's resources, you must let your employer use your work and sell it without your being compensated or notified. If your employer helped you promote your work, you must also let your employer use it, royalty-free. (That's called a "shop right" license.)

If you created your work without using any resource of your employer — and you can prove it — you own your work. But be careful: If you use anything you may have learned on the job, you may have to forgo or at least share ownership. A methodology, proprietary language or structure you learned on the job also counts as a resource of the employer.

ROYALTIES

"Fortune and glory, kid. Fortune and glory," said Indiana Jones in *Indiana Jones and the Temple of Doom*.

You get the glory with your ownership of your copyright, patent or trade secret. The fortune is where licenses and royalties come in. And that can be pesky navigating.

You can give up all your rights to a software publisher, but that can mean giving away the bath water with the baby.

The better alternative is to license the software to the publisher, so you can protect your ownership while still partnering to publish and distribute your work. □

Fafard is a vice president at The Partners, an information systems placement agency in Torrance, Calif., that specializes in software professionals.

RETURNS ON YOUR INVESTMENT

Typically, creative IS professionals can expect the following royalties for their patented endeavors

Stage of patented technology	Royalty range
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Proven to work, with endorsements	7-8%
Licensed for limited use	7-10%

IT CAREERS INDEX

I TEMPS ON THE RISE

IS hiring managers will greatly increase the number of temporary IS employees on their staffs over the next quarter, building on a trend. And fewer managers expect to decrease staff this year.

	Within 3 months		Within 12 months	
	Permanent	Temporary	Permanent	Temporary
Change in IS staff	2.1%	19.3%	1.3%	NA
Managers increasing staff	23.5%	12.3%	23.8%	9.0%
Managers decreasing staff	NA	NA	2.1%	5.3%
Managers maintaining staff levels	NA	NA	74.1%	85.7%
Current staff mix	Permanent 91.6%		Temporary 8.4%	

Base: 985 IS managers
NA=not available

Arrested DEVELOPMENT

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Managers decreasing staff	NA		2.1%	
Managers maintaining staff levels	NA		74.1%	
Current staff mix	Permanent 91.6%			

We Have A Saying About Technical Visionaries. It Takes One To Know One.

At AT&T Wireless Services, we believe that creative thinking inspires leadership. Which is why, in an industry as fast-paced as ours, we only hire the best. From technical savvy, to excellent interpersonal skills, the visionaries at AT&T Wireless Services have it all. The only question now is, do you have what it takes?

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(Job Code 97-0002000-AD)

The qualified individual will create, maintain and manage multiple customer and internal databases utilizing VAX Rdb and monitor/schedule database backups. The individual will also assist IS personnel with installation, troubleshooting and maintenance of application packages as well as coordinate job scheduling and database access. Requires 2+ years' programming experience with COBOL, SQL, and embedded Rdb, and experience with VAX CCD+, VAX Datatrieve, VMS and RMU. BSCS with IS/DBMS background preferred

Teradata Database Administrator

(Job Code 97-0002284-AD)

The qualified individual will be responsible for creating, administering, tuning, availability, security, and management of a corporate data warehouse running on the UNIX/Teradata RDBMS. The individual will also develop and maintain database backups/archive/recovery procedures of the data warehouse, and perform physical database design and performance tuning. Requires 3+ years' DBA experience in Teradata RDBMS with over 300 GB of user data, 5+ years' RDBMS experience in Teradata and/or other merchant databases; and 5+ UNIX system background and C programming experience. Knowledge of data warehouse tools (data transformation, OLAP tools such as Microstrategy DSS) design and implementation experiences desirable. Telcom and project management experience a plus.

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ORACLE IMPLEMENTATION

Helena Chemical Company is one of the largest distributors of agricultural chemicals, seeds and fertilizers in North America. The company's sales force is located in more than 175 sales offices throughout the United States. Helena's Corporate Headquarters is located in Memphis, Tennessee and has approximately 150 employees. The Company has 4 sales regions, 15 divisions, and 4 manufacturing facilities.

Like many other companies today, Helena Chemical was faced with aging legacy systems, increasing support issues, and a sizable Year 2000 problem. After months of research and review, we selected Oracle Corporation's software suite as our enterprise wide solution. We currently have five development implementations initiatives:

- **Data Warehouse (using Oracle Express and Sales Analyzer)**
- **Financials (G/L, A/P and A/R)**
- **Sales Order Management (order entry, purchasing, and inventory)**
- **Manufacturing (GEMMS)**
- **Human Resources**

Helena's new client server platform is an IBM RS/6000 SP system running AIX 4.2. The initial configuration houses separate development nodes for transaction processing (financials & order management), the Data Warehouse, GEMMS manufacturing and a utility node. Future plans are to add three corresponding production nodes in a second SP frame. We are migrating from an IBM ES/9000 mainframe, running VM/VSE and 140+ IBM AS/400s at our sales/retail locations. Our current communications network will be replaced with a wide area network utilizing frame relay.

The Corporate office of Helena Chemical Company has the following IS career opportunities:

Applications

Oracle Developers/Analysts
minimum 6 yrs development exp. including 2 yrs with Oracle development toolset

Technical Support:

Senior Oracle DBA
minimum 8 yrs exp. including 4 yrs administrating relational databases in AIX/UNIX environment

AIX Administrator
minimum 5 yrs exp. including 3 yrs AIX system administration

Telecommunications Analyst (voice and data)
minimum 3 yrs exp. with switch / voice mail systems and WAN utilizing frame relay

If you are interested in a challenging career move, come join our team and be part of a ground up Oracle implementation. The opportunities are unlimited for those possessing the skills to move Helena Chemical Company into the next millennium.

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Chief Programmer Analyst: 40 hrs/wk, M-F $65,000/yr. Design, develop, implement and administer UNIX Operating System, Relational Database, Data Communications, and Internet Connectivity. Technical support of all data communication and application, Visual Basic, Java and C++, SQL programming languages. Act as project leader on application development and new functionality. Requirements: Bachelors of Science in Engineering or Computer Science and three years of experience in job duties or three years as a Development Engineer or Programmer Analyst. Experience must include three years in communication software development including Internet, UNIX and C programming languages. Send resume to Pamela J. Furey, 135 Park Avenue, Barrington, IL 60010. Must show proof of legal authorization to work permanently in the U.S. Employer paid advertisement.

Engineering Manager, Software Development, 40 hrs/wk, 8am-5pm, $75,000/year. Lead research team in research & development of SS7 (Signaling System #7) and related communication products. Develop simulation program to analyze the performance of protocol. Design and implement SS7 communication modules in Real Time Embedded System using pSOS, Assembler, C, and C++. Design and implement SS7 network device driver for UNIX using C. Resolve symbolic formulation, problems of intent and inaccuracy. Requires PhD in Computer Science and one year of direct experience in field. Experience need not be as manager of research team as long as research is in the same field. Send resume and cover letter to Thomas Clip, Qnet, L.L.C., 1460 N. Farnsworth Ave., Ste 2, Aurora, IL 60505.

Computer Scientist/Architect to research, model design, develop, implement and maintain large-scale integer programs for scheduling and other applications, utilizing large-scale linear, nonlinear and integer programming and stochastic processes, artificial intelligence paradigms (including rule-based systems), neural networks and logic programming, and to program using C, C++ and LISP languages and code optimization algebra. Multiple openings available (at least 2). Requires M.S. degree in computer science, applied mathematics or related field. Successful candidate must be able to perform job duties on data of application. Qualified applicants must presently be eligible for permanent employment in the United States. Salary $60,000 to $80,000 per year, depending on qualifications, plus employee benefit plan. 40 hours per week. Send resume to Allon Rodin, Intelligent Optimization, L.C., 200 South Hanley, Suite 403, St. Louis, Missouri 63105. An Equal Opportunity Employer

GIS Specialist: Implement all phases of Geographic information system (GIS) projects such as data collection, GIS design & computer customization s/w development, local network system administration. Req: MS in Geographic Information System; 3mon' exp in job offered or related as graduate asst'. related exp include GIS design, network administration. 40hrs/wk, 8-5pm, $33,072/yr. Send resumes to Indiana Department of Workforce Development, 10 N. Senate Ave., Indianapolis, IN 46204-2277 Attn: Sean Blancarneaux. ID#3460555.

Database Specialist: Develop a database for inventory control utilizing IBM Mapics mainframe (inventory controlling systems), FilemakerPro, Microsoft Access databases via Novell NetWare. Coordinate design and maintenance of Deltek relational database as various platforms: client, server and mainframe. Develop query Programs in Deltek relational database system in track drawings and piece parts. Creation of bill of material of product in Deltek relational database systems and convert to American standard code for information interchange format, using WindowsNT and Unix mainframe environment. BS degree in Information & Decision Science required. One year in job or 1 year as Documentation Specialist required. Experience must include design & maintenance of database systems for inventory control using FilemakerPro, IBM Mapics via Novell Netware. Experience must include work with relational and non-relational databases for PC and client server databases. Experience as education must include the following systems: DELTEK System, FilemakerPro, LAN, WAN (local area network and wide area network). 40 hours/week, 8am-5pm, $41,500/year; no overtime. Must have proof of legal authority to work permanently in the U.S. Send resumes to ILLINOIS DEPARTMENT OF EMPLOYMENT SECURITY, 401 S. State St. - 7 North, Chicago, IL 60605. Attention: BRENDA KELLY, Reference #V-IL 16943-K. AN EMPLOYER PAID AD. NO CALLS - SEND 2 COPIES OF BOTH RESUME & COVER LETTER.

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Database Analyst: Reviews and develops various systems applications and conversion of manufacturing and business management relational databases from an Open VMS, UNIX and Windows operating system to an IBM AS 400. Develops and designs software modules to increase the capabilities of such database systems using SQL based on end-users needs and performs related database administration as required to insure that data access and transmission of data is in accordance with configuration. Uses Object Oriented Client/Server techniques to insure that such systems are capable of being implemented in a network environment. Requires Master's degree in Computer Science or Electrical Engineering and Computer Science. Also requires nine months experience in the job to be performed or nine months experience as a Systems Analyst or Systems Administrator. 9 experience in related field, experience must include the development of database systems in an Open VMS and AS400 environment. Education to include completion of one course in Object Oriented Programming and one course in client/server programming. Hours: 9:00 a.m. - 5:00 p.m. 40 hours per week at $38,000.00 per year salary. Two copies of resume to M. Brooks, File #C100194, DWE-ALC, P.O. Box 7972, Madison, WI 53707-7972.

Senior Programmer/Analyst. Performs analysis, design coding, and implementation on several modules of the next generation billing system. Assignments include ordering on-line, invoicing on-line, customer profiles, and customer definition/hierarchy on-line. Expertise in telephone billing systems. Defining business functions, designing functional requirements, designing logical database, technical design of On-Line & Batch Modules. Provide training to team members. Technology used is DL/1, Cobol, DB2, CICS, SPUFI, TSO/ISPF. Must have 2 yrs exp. as Senior Programmer/Analyst. Must have 2 yrs. Exp utilizing each of these technologies: System Software: MVS/ESA, DOS/VSE, VM, TSO, JCL, VSAM, CICS, VTAM, File-AID, ENDEVOR, SmarTest. Languages: Cobol, Cobol II, PL/1, FORTRAN, EASYTRIEVE, and Assembler. Master degree in Computer Science, Computer Information Systems, Statistics or Computer Application. 40hrs/wk, 9-5. $100,000/yr. Must have proof of legal authority to work in U.S. Send resume & cover letter (no calls) to: E & Sp. Prgms, Illinois Employment Services, P.O. Box 1818, Chicago, Illinois 60605. Employer Paid Ad.

Software Engineer: Creates, develops, enhances, customizes and modifies a software system installed in a VAX/VMS operating systems using VAX Rdb to control and monitor manufacturing of products, process orders, and track inventory of raw and finished goods. Creates and develops technical specifications for customization including modification of modules into entire software package to insure proper integration using DECforms for front end design. Performs system testing of modified and new function modules to insure processing performance and data acquisition using C language for batch processing. Will use software module management utilization to control, build, and develop appropriate software modules including use of Visual Basic to be used as graphic user interfaces. Requires Master's degree in Software Engineering, Computer Sciences, or Computer Science and Engineering. Also requires two years experience in the job to be performed. Job Location: Waukegan, IL. Please send resume to: Mr. Vydyanath Shivapuja, InfoWeb Systems, Inc. 3435 Asbury Road, Suite 150, Dubuque, IA 52002. No calls.

SOFTWARE ENGINEER to provide on site consulting services in system analysis, design, development, testing and implementation and user training for software applications using client/server technology including PowerBuilder, SQL Server, FoxPro, Sybase, Oracle and Windows; design Oracle data models using ERWin; analyze issues involved in data splicing and replication using Oracle on RS6000, analyze and design export of production data from FoxPro to Oracle technology. Require: Bachelors (or equivalent) in Electrical Engineering/Computer Science and three years experience in the job offered or as Software Development Manager/Programmer/Analyst/System Analyst. Experience must include at least one year each in Oracle, PowerBuilder, Sybase, SQL and WalCom. Salary: $60,000 per year, 8 am to 5 pm, M-F. Mail resume to: Mrs. J. Gaston, Division of Employment Security, P.O. Box 339, Florissant, MO 63032. Job Number 50534.

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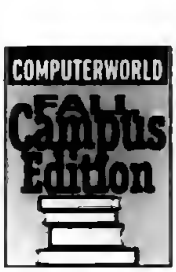

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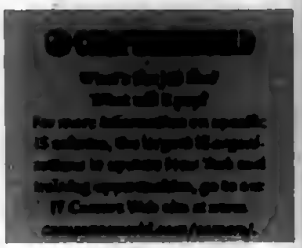
By Linda Wilson



If you long to escape the impersonal atmosphere typical of a metropolitan area or want a pleasant and affordable place to raise your family, upstate New York may be the place for you. Upstate New York comprises four midsize cities: Buffalo, Rochester, Syracuse and Albany. The region is packed with natural resources, cultural activities and top-notch universities. And, as in many cities, the demand for information systems professionals with language, networking or application development experience outpaces the supply in old and new technologies. That's because most organizations are scrambling to finish year 2000 and systems replacement projects. All four metropolitan areas share characteristics, but they also have unique qualities. Here's what to expect.

BUFFALO

MARKET SUMMARY:
Buffalo is dominated by midsize firms, many in manufacturing. The technology presence is vendor-heavy and includes companies such as systems integrator Computer Task Group; Softbank Services Group, a provider of help desk services; and Ingram Micro, Inc., a hardware/software distributor.

TOP IS JOBS AND SKILLS:
Cobol application development, primarily for year 2000 projects, is in demand. Because midsize companies dominate, AS/400 programmers are also needed. And demand is strong for professionals with experience in relational database management systems from Oracle Corp. and Sybase, Inc., and in SAP AG's R/3.

BUSINESS CULTURE:
State government has made strides in the past few years to improve the local business climate via changes in workers' compensation and Medicaid, but New York still is a heavily regulated and heavily taxed state, says Greg Eastmer, an IS recruiter at Professional Support, Inc. in West Amherst.

ROCHESTER

MARKET SUMMARY:
Several large companies on the south shore of Lake Ontario direct Rochester's economy and business culture. They include Eastman Kodak Co., Bausch & Lomb, Inc., Xerox Corp., Frontier Corp., Rochester Gas & Electric Corp., the Rochester Institute of Technology and the University of Rochester.

TOP IS JOBS AND SKILLS:
Cobol and complex instruction set computing (CISC) professionals are in demand — not only for year 2000 conversions, but also for routine systems maintenance. AS/400 developers are also in demand. On the client/server side, skills needed include Internet application development and networking, Unix, Oracle RDBMS, R/3, PeopleSoft and C++.

BUSINESS CULTURE:
"We work hard. Typically, we work until the work gets done," says Jeremy Seligman, chief information officer at Frontier, about the company's average work week of 40-plus hours. "We're also flexible if people have family and other commitments.

ALBANY

MARKET SUMMARY:
As the state capital, Albany is dominated by state government. It also has a thriving technology community, with a mix of corporate and vendor company IS needs, including Bell Atlantic Nynex Mobile, MapInfo Corp., Meso, Inc., Communications Software Consultants, Inc., Advanced Management Systems and Albany Technology Services.

TOP IS JOBS AND SKILLS:
On the mainframe side, Cobol, CISC and DB2 developers are needed. AS/400 developers are also in high demand. On the client/server side, Windows, PowerBuilder and C developers are hot. Networking skills in demand include TCP/IP and Notes.

BUSINESS CULTURE:
The pace of work in Albany depends on whether you work for the state government or private sector. "The state hours tend to be more regular, while in private companies, the workweek is clearly longer, between 45 and 55 hours," says Suzanne O'Conner, a recruiter at Patrick Whalen Associates, Inc.

SYRACUSE

MARKET SUMMARY:
Large employers include Mutual of New York, Agway, Inc., Carrier Corp., Marine Midland Bank, Anheuser-Busch Cos., Welch Allyn, Inc. and Key Bank of New York. The Center for Science and Technology, Syracuse University's business incubator, nurtures high-tech firms.

TOP IS JOBS AND SKILLS:
Cobol programmers are in demand — not only for year 2000 projects, but also for day-to-day work. AS/400 developers are also in demand. On the client/server side, C++, PowerBuilder, Visual Basic and Internet/intranet developers are needed.

BUSINESS CULTURE:
The business culture is relaxed and friendly, with an everyday-is-casual-day approach to dress. Still, the pace inside many information technology shops is fast. This is primarily because most organizations are shoulder-deep in year 2000 and system replacement projects. □

Wilson is a freelance writer in Glen Ellyn, Ill.

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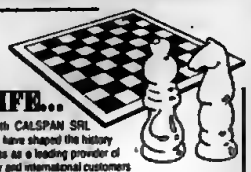

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Systems Programmer: Would be responsible for mainframe communications software including VTAM, NCP and TCP/IP in an IBM mainframe environment. Minimum of two to three years experience with these products in required. Responsibilities include installation, maintenance, performance tuning and troubleshooting. Candidate must have excellent communication skills and well developed problem solving ability.

Data Base Analyst: Experienced IMS DBA required in an IBM MVS mainframe environment. Responsible for the control, integrity and performance of test and production databases. Assists the application programming staff with development, testing and implementation of date base management system applications. Also performs problem determination and resolution as necessary. Some Oracle knowledge and/or experience a definite advantage. Candidate must have excellent communication skills and be able to work independently.

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Issue:
October 31, 1997

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Please contact: Timothy M. Bishop, Director of Database Services, 5 Sand Creek Road, Albany, NY 12205, bishopt@global2000.net

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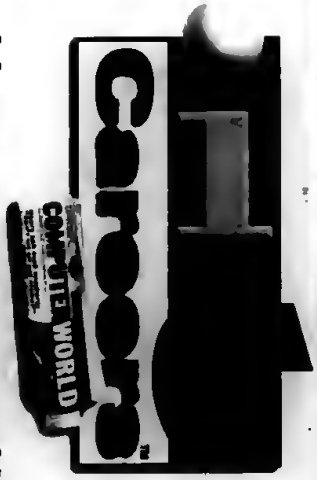

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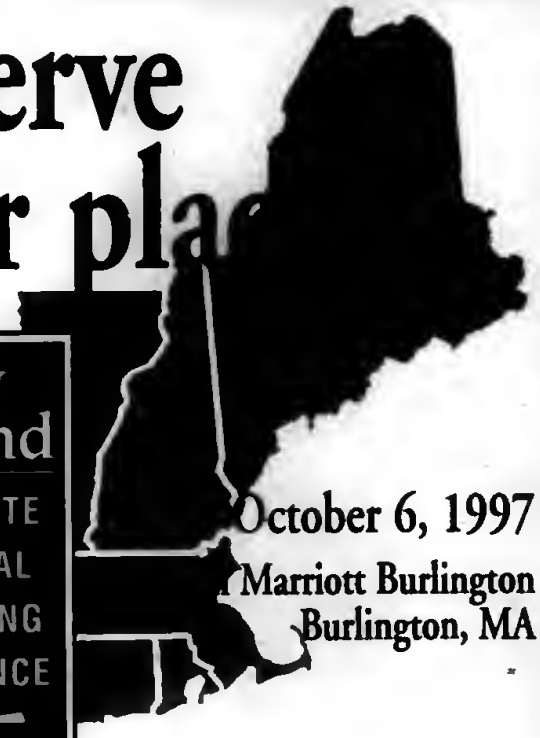

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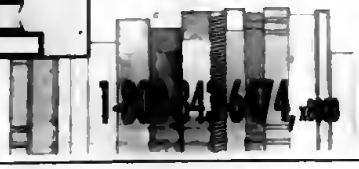

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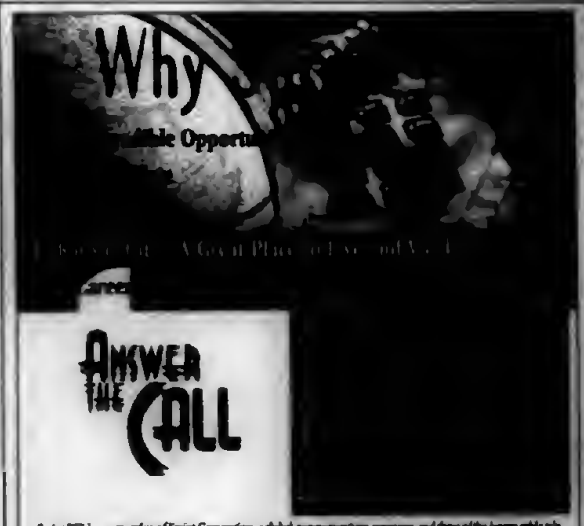

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Sr. Programmer Analyst - Boston, MA - Analyze requirements, perform logical and physical database design using SAP R/3 technologies on UNIX hardware. Use ABAP/4 programming techniques for SD, MM and FI/CO modules. M-F, 8AM-5PM, 40 hrs/wk, $105,000/yr. Req. Bach in Comp. Sci., Business or Engr. & 2yrs exp. Send 2 copies of resume to: Case #71079, PO Box #9668, Boston, MA 02114.

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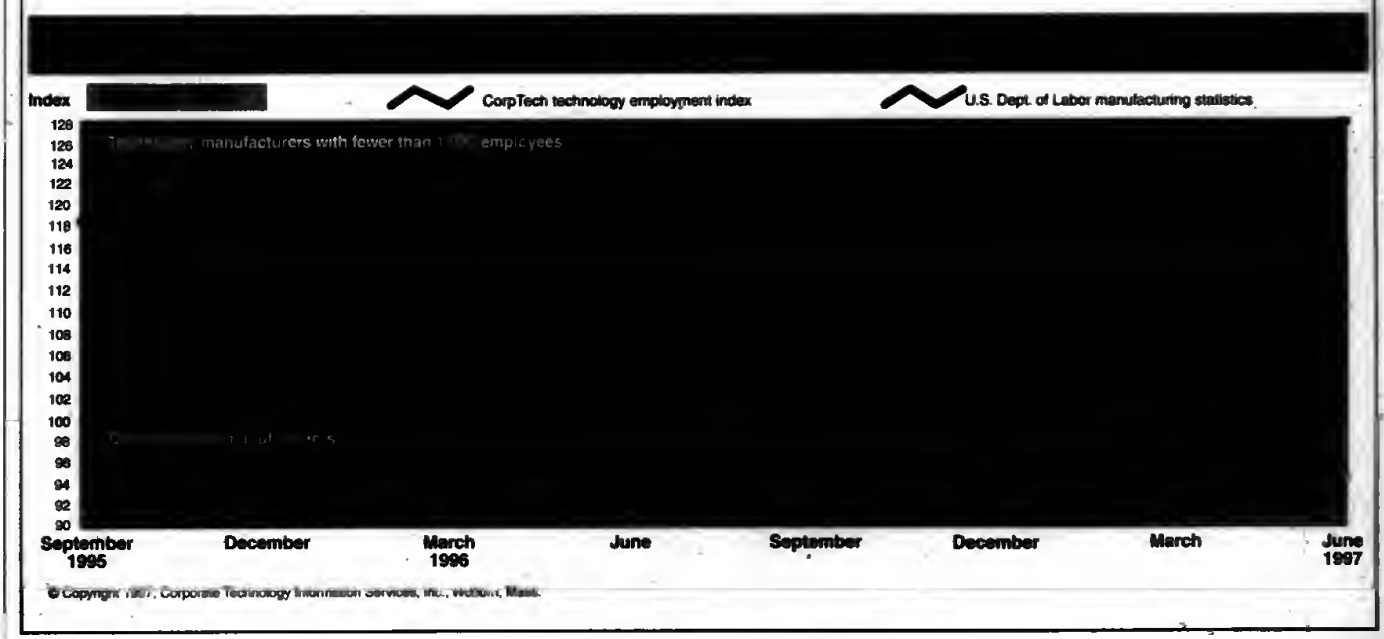

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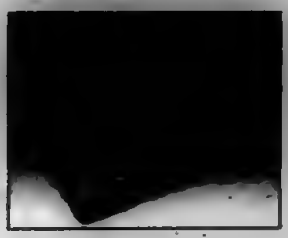

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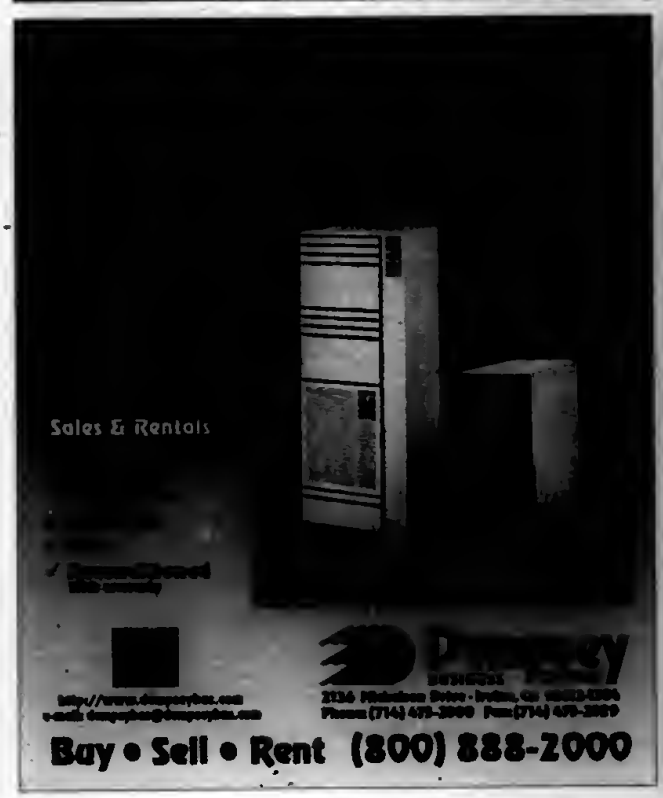

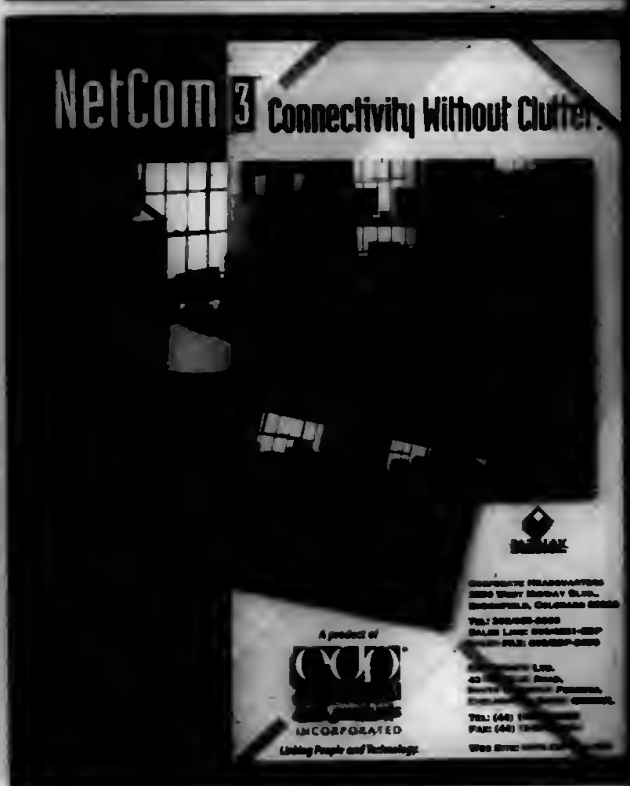

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ALBERTA

Register of Electors System

The Office of the Chief Electoral Officer (OCEO) which operates under statutory authority for managing elections in Alberta, has decided to develop a system to maintain elector information in a register.

The OCEO requests proposals from qualified vendors for services and software to:

1) provide a new application and database solution to support various voter registration and election management operations,
2) convert the existing data files for all registered voters to the new database and application,
3) develop methods to update the elector information database with information from other databases, e.g., motor vehicle registration, vital statistics, Elections Canada, etc.,
4) provide training for database administration staff and end-users in the new application, and
5) provide both database-administration and end-user documentation for the new application.

Copies of the Request for Proposal may be obtained prior to September 15, 1997 by contacting:

Elections Alberta
Attn: Brenda Atchison
Suite 100, 11510 Kingsway Avenue
Edmonton, Alberta T5G 2Y5

or call
Phone (403) 427-7191
Fax (403) 422-2900

OFFICIAL RULES - NO PURCHASE. PAYMENT OR CONTRIBUTION NECESSARY - To enter the Sweepstakes without helper follow all entry instructions published in the offer. One entry must be received by the time specified elsewhere in the offer or by 1/15/98, whichever is sooner.

Super Prize Sweepstakes - Winner will be selected at random drawings from all eligible entries received. Early Bird winner will be selected at a separate drawing from among all eligible entries. Sweepstakes begins 9/1/96. Drawings will be conducted on or about 4/30/98 by Ventura Associates, Inc., an independent judging organization whose decisions are final. Drawing will be held at 1040 Avenue of the Americas, New York, NY 10018, the event not to be presented to vote.

CONSUMER DISCLOSURE Different creative presentations of the sweepstakes may present different prize choices. Values in a given prize level will be approximately the same. All prize winners will have the option of selecting any prize offered in level won. Random, estimated maximum retail value and odds of winning each prize are as follows: 1 Grand Prize - $25,000 (or cash alternative of $25,000); 1 Fine Prize - $2,000; 1 Second Prize - $1,000; All Third Prizes - $50; 1,000 Fourth Prizes - $25 each; 1 Early Bird Prize - $5,000. Total prize value: $142,000.00. Certain creative presentations of the Super Prize Sweepstakes may present an Early Bird Prize. To qualify for the Early Bird Prize, a the Early Bird Prize as presented on your offer, your entry must be returned by the Early Bird date specified elsewhere on the offer. Odds of winning any prize are determined by the total number of eligible entries received. Distribution of sweepstakes will not exceed 300 million. All Super Prize Sweepstakes prizes will be awarded.

Automobile, boat/trailer prizes must be picked up in local dealer. All other merchandise prizes will be shipped at winner. Boat/trailer and/or automobile title, tags, license and registration fees are winner's responsibility as are any other incidental expenses not specified in the offer. Trip prizes subject to availability and must be completed within 12 months of date awarded. Actual values of trips depend on location of winners and dates at time of departure. Certain conditions and blackout dates may apply. If a trip prize or cruise by a minor, minor must be accompanied by a parent or legal guardian. Winner's traveling companion will be required to sign a release of liability prior to departure. Trip prizes are on a space available basis and do not include personal purchases or incidentals. In substitution of prizes, except sponsor reserves the right to substitute a prize of equal or greater value in the event an advertised prize is unavailable.

For winners list (available after 9/30/98) send self-addressed, stamped envelope by 1/15/98 to: Super Prize Winners, P. O. Box 9102, Medford, NY 11763-9102.

THE FOLLOWING APPLIES TO THE SWEEPSTAKES ABOVE - Any purchase, payment or consideration necessary to enter or win. Any photocopied or mechanically reproduced entries will be accepted. Not responsible for technical malfunctions, failure of computer, telephone equipment or software, incomplete transmission of entry information or for lost, late, misdirected, damaged, incomplete, illegible or postage-due mail. All entries become the property of sponsor and none will be returned.

Winner notification will be by mail. A winner may be required to sign and return an Affidavit of Eligibility/Liability/Publicity Release within 14 days of date printed on notification or he/she will be disqualified. Any prize/prize notification returned as undeliverable will result in disqualification. In a major prize is won by a minor, it will be awarded to parent or legal guardian and the Affidavit of Eligibility and Release must be signed by the parent or legal guardian. Except where prohibited by law, winners consent to the use of their names, hometowns, likenesses and photographs for advertising and publicity without additional compensation.

Sweepstakes is open to legal residents of the U. S., Canada and Europe (in those areas where made available) who have received the offer in the event that the designated recipient of the offer has moved, the offer may not be valid in the state, country or province in which the offer has been forwarded. Void in Puerto Rico and where prohibited by law. All federal, state, provincial and local laws and regulations apply.

All prize values are in U. S. currency. No transfer of prize permitted. A winner is responsible for all taxes on his/her prize.

Canadian residents, in order to win, must first correctly answer a time-limited skill testing question administered by mail. Any litigation regarding the conduct and awarding of a prize in this publicity contest by a resident of the province of Quebec may be submitted to the Régie des alcools, des courses et des jeux.

Sweepstakes may be presented in different creative presentations by different organizations. Ventura Associates, Inc., 1040 Avenue of the Americas, New York, NY 10018, the independent judging organization has provided all prizes at no charge. Ventura Associates, Inc., reserves the right to withdraw the promotion if it becomes technically corrupted. Employees of Sweepstakes Administrator, promoting organizations, their advertising agencies and promotional companies involved in the promotion and their families, agents, successors and assignees not ineligible to participate in the promotion and shall not be eligible for any prizes awarded herein. The parties hereto acknowledge that ECA is not liable for any prize awards payable to prevented participants in violation of this term.

COMPUTERWORLD TECHNOTOYS WEEKLY SWEEPSTAKES OFFICIAL RULES: No purchase necessary. Complete official entry form or print all entry information on plain paper, including this month's prize and key to: (IDG)000-2290. Incomplete entries not eligible. Sweepstakes begins 12:01 am (EST) Monday (the date of the issue). All entries must arrive by the no later than 11:59 am Monday of the following week. The issue date can be found in the top of most pages of this magazine. Sponsor not responsible for telephone or fax equipment failure or delayed transmissions. All entries become sponsor's property & will not be returned.

Winner will be determined in a random drawing on or about 5:00 pm (EST) the Monday following the issue date. One award not to prevent or vote. The prize fund to award value(s) detailed with the entry form is guaranteed to be awarded & delivered to winner approx. 45 days from drawing date. If notification letter or prize is returned as undeliverable, it will be awarded to an alternate winner at sponsor, the prize substitutions except due to unavailability, in which case a prize of equal value will be awarded. Prize not transferable or redeemable for cash. All taxes on prize are winner's responsibility. Acceptance of prize constitutes permission (except where prohibited) to use winner's name, hometown & likeness for promotional purposes without additional compensation.

Sweepstakes is open to legal US residents, 18 & older. Odds of winning determined by total number of entries received. Est. distribution: 150,000. Sponsor: Computerworld, Inc. 500 Old Connecticut Path, Framingham, MA 01701. Employees of Computerworld, Inc., its affiliates, subsidiaries, retailers, advertising & promotion agencies & immediate families of each are eligible. All federal, state & local laws & regulations apply. Void in Puerto Rico & where prohibited by law.

For winners list (available within 5 weeks of the drawing), send a SASE to: Sweepstakes Winners, Computerworld Technotoys Sweepstakes, 500 Old Connecticut Path, Framingham, MA 01701.

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INTERNATIONAL DATA GROUP

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STOCK TICKER

The Week in Stocks

Gainers

PERCENT

Recoton Inc.	44.0
Lycos Inc.(N)	39.0
Platinum Technology(N)	22.1
Red Brick Systems Inc.	21.0
Infoseek Corp.	18.8
Forte Software	18.7
Micrografx Inc.	16.3
Relex	13.6

DOLLAR

Lycos Inc.(N)	7.50
Compaq Computer Corp.(N)	6.88
Yahoo! Inc.(N)	6.25
Advanced Micro Devices	4.06
Platinum Technology(N)	4.00
Sun Microsystems Inc.(N)	3.94
Lattice Semiconductor	3.69
Tandem Computers Inc.(N)	3.44

Losers

PERCENT

Ross Systems, Inc.	-27.5
Systemsoft Corp.	-26.3
Data Race Inc.	-13.2
Excite, Inc.	-13.1
Sequoia Systems Inc.	-11.5
Network General Inc.	-10.9
MCI Communications Corp.	-10.6
Borland Int'l Inc.	-10.3

DOLLAR

NEC America	-5.50
Hewlett Packard Co.	-4.38
McAfee Associates	-4.19
Tektronix Inc.	-3.69
Analysts Int'l(M)	-3.63
MCI Communications Corp.	-3.50
Systemsoft Corp.	-3.19
3 COM Corp.	-3.06

INDUSTRY ALMANAC

Unix strategy brightens Sun

The shadow cast by Windows NT hasn't darkened the analyst view of Sun Microsystems, Inc. (Nasdaq:SUNW).

The company's stock last week set a 12-month high after Sun outlined its strategy to produce low-cost, Unix-based servers, which are seen as a weapon designed to battle two foes: Compaq Computer Corp. (NYSE: CPQ) in Houston, and Windows NT server vendors.

Sun, which had previously focused on midrange and high-end servers, last week introduced the first of a new line of aggressively priced servers, the Enterprise 450, that cost $14,650.

Investors sent the Mountain View, Calif., company's stock up 2 11/16 points to 50 7/16 on the day of the announcement. "It's a good move, it's been long anticipated, and it serves a very important need in the marketplace," says Stephen C. Dube, an equity analyst at Wasserstein Perella Securities in New York. Analysts say Sun will be able to offer servers for PC environments that are more robust and scalable than those that run Windows NT.

Dube and Jay Vleeschhouwer, an equity analyst at Josephthal Lyon & Ross, Inc. in New York, are among the analysts that recommend a Buy on Sun stock.

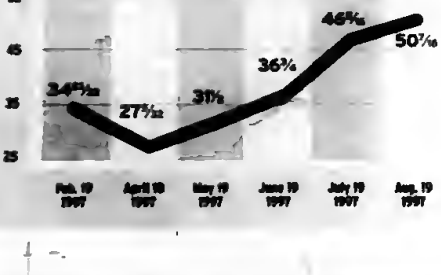
The new servers may detract from some of Sun's existing product sales, but "on the whole, I think there is going to be a good upside for Sun," Vleeschhouwer says.

But Jonathan Eunice, an industry analyst at Illuminata, Inc. in Nashua, N.H., says Sun's servers are unlikely to slow the NT momentum.

"Unix today, Unix yesterday, Unix forever is kind of the continuing approach ... there is a set of customers that really like that, but it's not the biggest set of customers in the world," Eunice says. — Patrick Thibodeau

A NEW HIGH FOR SUN

Sun's stock price has been shooting almost straight up since May. The company had shown strong revenue gains in the spring.



Issue	52 Week High	52 Week Low	Aug. 22 Close	Week's Net Change	Week's Pct Change
NASDAQ					
DAIS	4 1/8	1 1/16	1 7/16 bid	52 06	5 6
BIT	77 75	49 63	BMC Bitech Corp	64 50	2 56	3 8
AKAD	40 25	16 63	Akado Communic	46 94	0 34	0 9
I	42 69	10 75	Ariel	19 81	0 50	1 1
BAHN	8 1/2	1 1/8	Bahnhof Internet	2 44	0 06	2 8
BAY	31 75	11 1/8	Bay Networks Inc (M)	15 18	1 06	8 2
BEL	78 25	55 1/8	Bell Atlantic Corp	71 00	2 00	2 9
BLS	45 81	11 25	Bell South Corp	44 13	1 00	2 2
BMET	42 25	9 25	Boston Technology Inc	9 56	0 13	1 4
CS	89 10	27 50	Cabletron Sys Inc	31 19	1 44	4 8
CGPM	11 50	8 81	Cen Gen Grand Corp	9 81	0 50	5 4
CSCO	34 25	15 25	Cisco Systems Inc	33 81	0 06	0 1
CMNI	1 00	1 11	Computer Networks Tech	4 56	0 31	7 4
DIGI	31 13	17 63	DSL Communications	17 00	0 88	5 2
FORE	43 84	18 00	FORE Systems Inc	39 06	0 39	2 0
GDC	12 50	9 13	General Datacomm Ind	9 56	0 75	10 4
GSN	53 00	18 13	General Signal Networks	44 18	1 44	3 1
GTE	69 18	47 75	GTE Corp	45 13	1 56	3 5
ITU	80 13	39 25	Itu Group Inc	81 50	2 13	2 5
MADGF	18 13	4 50	Madge Networks NV	8 69	0 25	3 3
MCIC	41 19	21 88	MCI Communications Corp	29 81	3 50	10 6
NETM	9 88	2 50	NetManage Inc	3 00	0 38	10 3
NTRX	8 50	1 06	Netrix Corp	1 81	0 01	1 9
NCDX	18 25	8 81	Network Comput Inc Depos	8 94	1 00	12 0
NWK	22 38	11 13	Network Equipment Tech	19 25	1 50	7 5
NETG	30 75	11 13	Network General	18 50	0 25	1 1
NN	52 64	24 00	Newbridge Networks Corp	46 25	3 19	7 0
NI	108 19	48 50	Northern Telecom Ltd	98 81	0 25	0 3
NOVL	11 00	9 38	Novell Inc	9 22	0 16	1 7
OCTL	51 13	13 50	Octel Communications Corp	30 31	0 00	0 0
ODSI	24 25	9 13	Optical Data Systems Inc	10 50	0 13	1 2
PCTI	17 88	8 25	Picturetel Corp	11 13	0 44	9 0
PTON	4 25	1 31	Proxicom Inc	1 75	0 00	0 0
RACO	6 38	1 50	Racotek Inc	2 25	0 69	44 0
RTR	9 25	1 13	Rtel	5 75	0 69	13 6
SBC	62 25	48 00	SBC Communications	54 94	1 38	2 4
SI 4	24 94	12 38	Scitex Corporate Inc	21 00	1 44	8 2
SHV4	63 50	8 25	Shiva Corp	11 00	0 25	2 2
FON	52 75	17 50	Sprint Corp	46 56	0 00	0 1
SMSC	15 25	4 25	Standard Microsystems Corp	11 13	0 83	9 0
USW	39 44	27 13	US West Inc	38 44	1 13	3 2
XIRC	8 13	2 38	Xircom	14 50	0 83	6 5
XLNX	58 38	12 38	Xilinx Corp	18 75	1 00	5 6
NYSE						
AAPL	29 19	12 75	Apple Computer Inc	23 31	0 69	3 0
CPQ	50 25	20 50	Compaq Computer Corp (M)	46 44	2 88	11 8
DELL	81 94	15 00	Dell Computer Corp (M)	81 25	0 75	0 9
GTW	46 25	19 38	Gateway 2000 Inc	38 88	2 03	7 0
HWP	11 50	41 75	Hewlett Packard Co	42 69	4 38	9 3
MUEI	23 38	12 81	Micron Interactive Inc	18 81	0 56	3 5
NMPNY	74 00	12 38	NEC America	84 75	5 50	7 0
SGI	28 81	12 81	Silicon Graphics	28 44	0 00	0 0
SUNW	51 31	25 50	Sun Microsystems Inc (N)	50 25	3 94	8 5
AMEX						
AMM	14 00	8 13	Ammex Corp	12 25	0 31	2 8
DGN	38 25	18 25	Data General Corp (N)	32 75	0 88	2 2
DEC	97 81	25 00	Digital Equipment Corp	94 81	1 19	2 8
IBM	108 44	51 00	IBM	101 44	0 13	0 1
MDCO	8 75	2 88	Medicomp Data Corp	4 38	0 19	4 5
NETF	4 38	0 88	Netframe	1 00	0 01	1 2
PRCM	20 13	9 00	ProComm Technology Inc	10 94	0 19	1 7
SQNT	31 25	10 13	Sequent Computer Sys	21 44	0 00	0 2
TEM	3 88	2 00	Sequoia Systems Inc	2 88	0 56	11 3
SRA	57 25	17 25	Stratus Computer Inc	52 13	2 00	3 8
TDM	51 81	10 13	Tandem Computers Inc (N)	11 81	3 44	11 9
UIS	11 25	5 75	Unisys Corp	10 63	0 38	3 4
OTHER						
ADBE	45 00	21 50	Adobe Systems Inc	41 63	0 63	1 5
AMSWA	12 13	8 50	American Software Inc (M)	11 19	1 13	11 9
APLX	10 00	5 13	Applix Inc	8 75	1 00	12 8
APSW	45 00	17 00	Aspen Software	41 00	1 38	3 5
ADSK	41 00	20 25	Autodesk Inc (M)	45 63	2 63	6 1
BCSS	32 50	20 88	BCS Systems Inc	30 25	0 25	0 8
BMCS	85 13	51 88	BMC Software Inc (M)	62 63	2 88	2 8
BOOL	23 81	15 88	Boole and Babbage	20 21	0 13	0 5
BORL	88	8 13	Borland Int'l Inc	8 19	0 94	10 3
BOBY	20 50	8 63	Bus Nets Objects	9 94	0 06	0 9
CAYN	8 75	2 00	Caere Corp Software Inc (L)	2 25	0 00	0 0
CNTY	5 88	1 13	Century Software	1 50	0 00	0 0
CHKPF	36 25	15 63	Checkpoint Software Technologies	34 63	1 44	6 2
COGNE	19 50	21 25	Cognos Inc	10 38	0 63	2 1
CA	71 81	17 25	Computer Associates	64 63	1 00	1 8
CVN	10 13	3 00	Computervision Corp (L)	3 00	0 13	5 8
CPWR	64 50	20 25	Compuware Corp (M)	83 00	0 11	0 2
CSRE	19 00	8 00	Corporate Soft Inc (L)	8 25	0 13	1 5
COSFI	10 75	5 00	Cosmi Corp	1 88	0 03	5 0
DWTI	8 63	2 25	Datawatch Technologies Inc	2 88	0 13	4 2
INE	39 50	9 50	Informix Corp	18 19	0 81	4 8
FRTE	47 00	1 25	Forte Software	13 00	2 19	18 7
FTPS	8 50	1 50	FTP Software Inc	3 50	0 06	1 7
HUMC	81 63	32 00	Hyundai Electronics Corp Ltd	57 00	1 63	4 0
MYSW	29 38	12 00	Hyperion Software Corp (M)	23 00	0 63	2 2
IRIC	18 25	11 11	Information Resources	17 11	0 38	2 1
IFMX	51 13	9 50	Informix Corp	9 00	0 19	2 0
INGR	12 88	9 25	Intergraph Corp	5 00	0 25	2 0
JEAH	4 00	0 81	Interleaf Inc	1 06	0 28	10 3
ISLI	17 00	8 25	Intersolv Inc (M)	10 75	0 88	5 8
INTU	40 25	20 00	Intuit Inc	24 00	1 44	5 8
TEC	25 75	1 50	Learning Co (The)	10 88	0 00	0 0
LCWX	10 50	4 13	Logic Works	8 00	0 00	0 0
MAPS	11 00	7 00	Maplinx Corp	11 13	0 38	3 1
MATH	7 00	2 19	MathSoft	2 91	0 22	8 1
MCAF	78 50	18 50	McAfee Associates	55 25	4 18	7 0
MENT	14 88	8 50	Mentor Graphics	10 00	0 19	1 9
MPGY	36 38	10 81	Micro Focus (H)	18 63	1 56	9 0
MCBI	12 38	4 00	Microbilt Inc	7 56	1 00	10 1
MSFT	150 75	60 38	Microsoft Corp	115 00	0 13	0 1
ORCL	42 13	22 50	Oracle Corp (N)	39 50	1 44	3 8
PMTC	64 25	17 50	Parametric Technology	48 50	2 13	4 6
PARQ	4 88	0 00	Parc Place Systems Inc	1 00	0 00	0 0
PSFT	66 38	50 93	Peoplesoft	51 00	0 13	0 2
PTEC	19 75	11 00	Phoenix Technologies	15 13	1 63	12 0
PSQL	13 75	6 50	Platinum Software	13 38	0 88	6 5
PLAT	22 19	10 13	Platinum Technology (M)	22 13	4 00	22 1
PRGS	23 00	12 81	Progress Software Corp	18 13	0 19	1 0
RNBO	22 13	13 13	Rainbow Technologies Inc	18 75	1 00	5 6
REDB	28 00	5 00	Red Brick Systems Inc	10 44	1 91	21 0
ROSS	9 75	1 15	Ross Systems, Inc	3 67	1 38	27 5
SAFE	83 00	50 00	Safeguard Corp	55 00	1 50	2 3
SCOC	8 63	3 13	SCO Inc	5 88	0 25	4 0
SDTI	44 38	21 00	Security Dynamics Tech	38 88	1 13	3 0
SOFTA	11 25	8 88	Softdesk Inc	12 38	0 38	3 0
SSW	78 00	27 25	Steltning Software Inc	12 88	0 44	3 8
SDRC	28 13	17 38	Structural Dynamics Research	26 00	0 25	1 0
SYBS	21 13	12 19	Sybase Inc	16 56	0 81	5 2
SYMC	25 81	8 75	Symantec Corp	24 69	1 88	8 2
SNPS	30 50	27 75	Synopsys	14 88	0 25	0 7
USAR	17 81	1 00	System Software Assoc (M)	11 50	1 50	12 1
SYSF	19 50	1 16	Systemsoft Corp	8 04	2 19	26 1
TPUV	5 63	1 13	Tripos Inc	3 81	0 06	1 5
VIEW	10 38	5 38	Virtual Vision Systems (M)	10 13	1 25	1 2
VMPR	10 00	5 50	VMark Software Inc	8 13	0 25	2 9
WANS	16 25	10 13	Wang Laboratories Inc Series	13 13	0 44	1 2
WALI	29 13	12 25	Wall Data Inc	17 50	0 25	1 4
WANG	24 00	10 00	Wang Laboratories Inc	18 88	0 88	2 2
OTHER						
AMZN	30 88	15 75	Amazon.com	25 50	0 84	1 8
AOL	75 50	22 38	America Online	66 50	0 50	0 7
ADAM	25 38	16 81	Adsmore Corp	19 00	0 11	0 6
CSRV	18 75	8 00	Compuserve Corp	11 75	0 50	4 0
EDFY	25 75	0 88	Edify Corp	13 44	0 00	0 0
KOSI	21 63	5 00	Excite Inc	14 00	2 25	19 1
SEEK	11 50	9 00	Infoseek Corp	9 94	0 94	10 0
ICOS	23 25	8 00	Icos Inc (H)	20 75	-7 50	39 0
NSCP	65 00	25 50	Netscape Comm Corp	10 50	2 25	5 0
OMKT	25 50	8 50	Open Market Inc	8 81	0 81	7 0
PSIX	14 50	5 50	PSINet	8 00	0 11	1 5
QDEK	5 88	2 00	Quarterdeck Corp	2 59	0 03	1 2
RAPT	25 75	0 88	Raptor Systems	11 81	-0 00	-0 5
SCUB	10 50	4 75	Security Computing Corp	5 69	0 00	1 1
SPYG	20 25	8 00	Spyglass Inc	8 09	0 44	5 2
YHOO	57 75	18 75	Yahoo! Inc (M)	55 00	6 25	12 8
OTHER						
AMD	40 50	12 63	Advanced Micro Devices	41 50	4 00	10 9
ADI	36 25	14 63	Analog Devices Inc (M)	34 00	1 38	4 2
CMPS	26 50	7 88	Cirrus Logic Technologies	17 00	0 00	0 0
CRUS	24 25	8 00	Crystal Logic	14 00	0 34	2 4
CY	17 13	10 00	Cypress Semiconductor Corp	10 21	1 38	9 2
CYRX	60 00	17 50	Cyrix Corp	28 00	1 00	3 7
INTC	100 00	39 25	Intel Corp	94 31	0 31	0 3
LSCC	71 63	24 00	Lattice Semiconductor	60 75	3 50	5 8
LSI	46 88	20 13	LSI Logic Corp	32 94	0 44	1 4
MCRL	59 25	8 00	Micrel Semiconductor Inc (H)	33 50	1 25	3 9
MU	60 88	20 38	Micron Technology	44 69	1 25	2 8
MOT	50 50	44 13	Motorola Inc	48 25	-2 75	5 4
NSM	23 38	15 13	National Semiconductor	34 00	1 19	3 5
TXN	131 31	60 63	Texas Instruments	118 19	0 63	0 5
VLSI	54 25	12 50	VLSI Technology	31 69	0 25	0 8
XLNX	58 50	29 88	Xilinx	51 88	1 88	3 7
ZLG	29 50	14 00	Zilog Inc	24 31	0 00	0 0
OTHER						
ADPT	50 88	23 38	Adaptec Inc (M)	49 81	1 81	3 8
APCC	31 38	12 88	American Power Conversion	26 00	3 00	13 0
CREAF	25 25	8 00	Creative Technology Ltd	21 00	0 00	0 2
DACE	24 50	8 00	Data Race Inc	7 00	1 13	13 2
DTM	12 50	6 75	Datatec Corp	8 75	0 25	2 9
EMC	54 88	10 88	EMC Corp (N)	51 81	1 06	2 1
EMUL	21 25	11 25	Emulex Corp	15 88	0 13	0 8
ESCC	88 50	28 00	Evans and Sutherland (M)	60 50	4 13	7 3
EXBT	13 50	8 00	Exabyte	10 00	0 13	1 3
HSLF	2 00	1 13	Hyperlegent Info Systems	1 31	0 03	2 4
IOMG	27 00	12 63	Iomega Corp	22 31	-0 56	-2 5
IPIS	2 75	0 94	IPL Systems Inc	1 00	0 00	0 0
KMAG	36 75	15 31	Komag Inc	17 13	1 31	8 3
MTSI	34 00	12 00	Micro Touch Systems Inc (M)	30 00	0 88	2 9
MTIC	8 00	1 00	MTI Technology Corp	7 63	0 44	6 0
PNCL	8 75	0 50	Pinnacle Micro Inc	8 69	0 00	0 0
AQM	8 00	2 00	QMS Inc	8 75	-0 19	-2 1
QNTM	59 00	7 13	Quantum Corp (H)	15 00	0 00	0 0
RDUS	2 19	0 13	Radius Inc	0 32	0 00	0 0
SEG	56 25	22 63	Seagate Technology	40 06	2 44	5 7
SOS	19 63	8 75	Storage Computer Corp	12 75	0 63	5 2
STK	54 88	43 88	Storage Technology	48 38	1 31	2 8
TEK	69 25	37 00	Tektronix Inc	55 81	3 69	6 2
WDC	34 75	10 63	Western Digital Corp (H)	30 31	9 00	22 9
XBX	80 50	46 63	Xebec Corp	75 25	-0 38	-0 5
OTHER						
AMSY	37 13	15 25	American Mgmt Systems	21 75	1 75	7 4
ANLY	42 00	17 00	Analysts Int'l (M)	23 63	-1 88	-9 2
AUD	58 00	28 50	Auto Data Processing (L)	44 81	1 19	2 6
BDMN	88 75	18 75	BDM International Inc	25 63	-0 00	-0 0
CATP	38 00	21 25	Cambridge Tech Partners	32 13	5 81	22 1
CEN	53 13	29 50	Ceridian Corp	41 25	0 38	0 9
CDO	29 44	17 38	Comdisco Inc	21 00	0 25	0 0
CPU	52 50	19 25	Compusa Inc (H)	29 81	-0 75	-2 5
CMRZ	45 63	11 88	Computer Horizons	16 50	0 00	0 0
CSC	80 50	57 88	Computer Sciences	75 50	1 00	1 3
TSK	49 19	14 00	Computer Task Group	40 13	0 88	2 3
CDAS	28 88	12 38	Comdata Data Systems Inc	20 06	0 13	0 0
EGGS	8 00	3 63	Electron Discount Software	5 94	-0 13	-2 1
EDS	69 38	31 38	Electronic Data Systems Corp	57 84	-0 31	-0 5
HAC	60 63	18 75	Hadco Corp	30 00	2 05	7 3
INEI	88 75	2 25	Information Electronics	3 69	0 00	1 7
KEA	70 00	19 00	Keane Inc	56 50	2 50	4 2
MICA	26 25	12 31	Micronetics Inc (M)	25 88	2 69	11 8
PAYX	42 88	23 88	Paychex	30 75	2 88	7 6
PMS	57 00	40 13	Policy Management Sys (H)	54 94	2 44	4 4
REY	20 81	13 75	Reynolds and Reynolds	19 25	0 00	0 0
SCBI	27 00	10 00	SCB Computer Tech Inc	25 81	0 75	3 0
SEIC	90 00	38 75	SEI Corp	28 00	-0 81	-2 8
SMED	81 75	36 75	Sharp & Medical Systems	40 25	0 00	-1 4
SSPE	39 50	10 00	Software Spectrum Inc	26 50	1 93	9 8
SDS	59 25	37 00	Sungard Data Systems	48 50	-0 50	-1 0
VSTY	88 75	8 00	Vantive Corp	15 00	1 06	7 7

KEY (H) = New annual high reached in period (L) = New annual low reached in period

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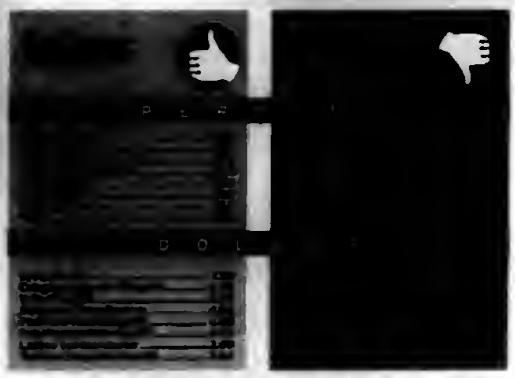
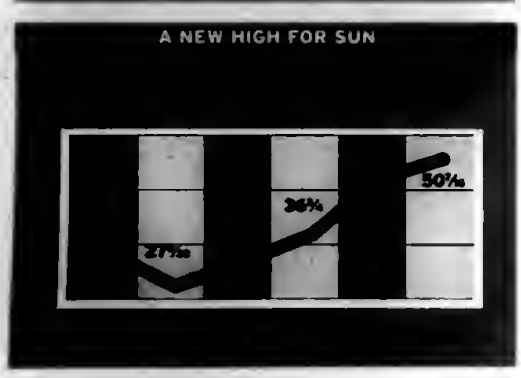
The Week in Stocks



INDUSTRY ALMANAC



Date	52-Week	Range		Avg. 22 Stocks	Wk Net Change	Wk Pct Change
COMS	91.38	24.00	3 COM Corp	52.06	3.00	5.6
AIT	71.75	49.63	AMERITECH Corp	64.38	2.56	3.8
ASND	.0032	36.13	Ascend Communications	46.44	0.00	2.6
T	42.63	30.75	AT & T	38.63	0.50	1.3
BANY	0.88	1.19	Banyan Systems Inc	2.44	9.06	2.6
BAY	37.75	15.94	Bay Networks Inc. (H)	35.38	2.00	6.2
BEL	78.25	35.17	Bell Atlantic Corp	71.00	-2.00	2.7
BLS	48.81	29.25	BellSouth Corp	44.38	1.00	2.6
BRKT	42.25	8.25	Broadcast Technology	9.50	-0.11	1.3
CS	20.00	57.00	Cabletron Systems	31.50	1.44	-4.4
CGNX	17.50	4.00	Centigram Communications	11.63	0.38	4.5
CSCO	83.23	43.25	Cisco Systems Inc.	75.81	0.00	0.1
CMNY	7.00	5.31	Computer Network Tech	6.56	0.31	7.4
DIGI	51.13	12.63	DSC Communications	27.44	0.69	7.2
FORE	43.63	14.00	FORE Systems Inc.	19.00	0.38	3.0
GDC	10.88	6.13	General Datacomm Indst.	5.94	-0.75	10.3
GSX	33.00	36.13	General Signal Networks	44.88	1.44	-3.1
GTE	49.88	37.75	GTE Corp	45.31	1.38	-3.3
LU	90.75	36.25	Lucent Tech	81.88	-2.13	-3.3
MADGF	16.13	4.50	Madge Networks NV	6.88	0.19	3.9
MCIC	43.38	23.88	MCI Communications Corp	29.88	3.50	10.6
NETM	0.88	0.88	NetManage Inc.	1.00	-0.38	10.9
NTRX	3.94	1.44	Netrix Corp	1.97	-0.05	1.8
NCDN	16.25	4.00	Network Computing Devices	9.94	1.00	10.5
NYNX	52.38	11.13	Network Equipment Tech.	19.25	1.38	7.5
NETG	20.25	11.13	Network General	16.88	0.25	1.5
NN	52.44	54.88	Newbridge Networks Corp	46.25	3.19	7.4
NT	107.19	26.00	Northern Telecom Ltd.	20.88	0.88	0.5
NOVL	10.88	0.88	Novell Inc.	6.25	0.38	1.9
OCTL	31.75	13.94	Octel Communications Corp	30.31	0.06	0.2
ODSI	24.25	9.75	Optical Data Systems Inc.	10.50	-0.13	1.2
PCTL	37.88	8.25	Picturetel Corp	11.31	0.64	9.0
PTON	4.25	1.31	Proteon Inc.	1.75	0.00	0.0
RACO	4.88	5.94	Racotek Inc.	0.25	0.00	44.0
RETX	0.75	0.88	Retix	1.75	0.06	12.6
SBC	62.25	46.00	SBC Communications	54.94	-0.50	2.4
SFA	24.94	10.88	Scientific Atlanta Inc.	21.88	1.44	-0.8
SHVA	63.50	8.25	Shiva Corp.	11.88	0.00	2.6
FON	52.75	37.50	Sprint Corp	46.38	-0.06	-0.1
SMSC	12.25	8.25	Standard Microsystems Corp	11.13	0.63	2.9
USW	39.44	27.25	U S West Inc.	28.44	1.38	2.6
XINC	33.13	7.50	Xircom	31.38	0.69	4.3
XYLN	28.00	12.38	Xylan Corp	28.75	0.00	2.6
AAPL	29.38	12.75	Apple Computer Inc	23.81	0.06	7.0
CPQ	45.25	20.00	Compaq Computer Corp. (H)	44.00	0.88	33.8
DELL	87.88	15.00	Dell Computer Corp (H)	80.38	0.75	0.2
GTW	46.25	10.88	Gateway 2000 Inc.	39.88	2.03	3.0
HWP	71.50	41.75	Hewlett Packard Co.	62.88	-4.38	-0.6
IBM	109.44	30.00	IBM	109.44	0.13	0.1
MDCD	9.75	0.88	Meridian Data Inc.	4.88	0.19	4.5
NETF	4.88	0.88	NetFrame	1.00	0.00	2.6
PRCM	30.13	4.00	ProCom Technology Inc.	10.94	0.19	1.7
SQNT	31.25	10.13	Sequent Computer Sys	21.44	0.00	0.2
TEXM	4.88	0.88	Sequoia Systems Inc.	2.00	-0.38	-11.5
SBA	37.25	17.25	Storage Computer Inc.	32.13	-2.06	-0.6
TDM	33.81	10.25	Tandem Computers Inc. (H)	33.81	3.44	11.3
UIS	11.25	5.75	Unisys Corp.	20.69	-0.06	-3.4
PONE	49.00	31.50	Aeroflex Systems Inc.	41.63	0.63	1.5
AMSWA	12.19	4.00	American Software Inc. (H)	11.38	1.19	11.9
APLX	40.00	3.13	Applix Inc.	8.75	1.00	12.9
ARSW	49.00	37.00	Arbor Software	41.09	1.19	0.5
ADSX	47.00	20.25	Autodesk Inc. (H)	40.63	2.63	0.7
BCSS	52.50	50.88	BCS Systems Inc.	30.25	0.25	0.8
BMCS	68.13	33.63	BMC Software Inc. (H)	62.63	2.38	3.9
BOOL	27.63	12.63	Boole and Babbage	20.25	-0.13	-0.6
BORL	9.81	4.75	Borland Int'l Inc.	5.19	-0.06	30.5
BOBY	20.00	6.63	Business Objects	6.94	-0.06	-0.6
CAYN	8.25	2.06	Cayenne Software Inc. (L)	0.88	0.00	0.5
CNTR	0.88	1.13	Centura Software	1.00	0.00	2.6
CMKPY	36.25	16.63	Checkpoint Software Technologies	26.63	1.44	0.5
COGNF	39.50	21.25	Cognos Inc	30.38	10.63	2.1
CA	71.81	37.25	Computer Associates	64.69	1.00	1.6
CVN	13.94	3.00	Computervision Corp (L)	3.00	-0.19	2.9
CPWR	64.50	20.25	Compuware Corp (H)	60.00	0.13	0.2
CSRE	18.00	0.00	Consilium Inc. (L)	8.25	0.13	1.5
COSFF	10.75	0.00	Cortex Corp	2.88	-0.63	-0.6
DWTI	0.63	2.25	Datawave Technologies Inc.	2.38	-0.13	-4.2
FILE	20.00	0.00	Filenet Corp.	18.19	-0.81	-4.3
FRTE	47.00	7.25	Fourth Shift Corp	13.88	2.19	10.5
FTPS	0.00	3.50	FTP Software Inc	1.56	-0.06	-1.7
HUMIF	41.00	22.00	Humanware Group Ltd	37.88	1.63	0.5
HYSW	28.00	10.00	Hyperion Software Corp (H)	25.00	0.63	2.6
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IFMX	31.13	0.00	Informix Corp	9.00	-0.19	2.6
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LEAF	4.00	0.31	Interleaf Inc.	3.00	0.38	10.5
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INTU	78.25	20.88	Intuit Inc.	28.00	1.47	-0.8
TLC	25.75	3.50	Learning Co (The)	20.88	-0.06	-0.6
LCWK	10.50	4.13	Logic Works	8.00	0.00	0.2
MAPS	35.00	7.38	Mapinfo Corp	11.75	-0.38	-3.1
MATH	7.00	2.19	MathSoft	2.91	0.22	0.1
MCAF	38.00	20.00	McAfee Associates	30.88	-4.19	-7.8
MENT	14.38	6.38	Mentor Graphics	10.88	0.19	1.8
MFGY	50.38	10.63	Micro Focus (H)	33.63	-1.88	2.6
MGXI	32.50	8.00	Microcraft Inc	7.50	1.06	16.3
MSFT	130.75	20.88	Microsoft Corp	129.00	0.13	0.1
ORCL	42.13	23.50	Oracle Corp (H)	39.50	1.44	2.8
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PSQL	10.75	0.88	Platinum Software	11.38	0.88	0.5
PLAT	22.13	10.19	Platinum Technology (H)	22.13	4.00	22.1
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RMBO	22.13	13.75	Rambus Technologies Inc	18.75	1.06	2.6
RBIX	28.00	3.00	Red Brick Systems Inc	20.44	1.63	21.0
BOSS	0.75	1.75	Bridge Systems, Inc.	3.63	1.38	-27.3
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TRUV	5.63	1.38	Truevision Corp.	1.81	-0.06	-3.3
VIEW	10.88	0.88	Viewlogic Systems (H)	10.13	1.23	-7.2
VMBK	10.00	9.00	Vmark Software Inc.	0.75	0.25	2.9
WALK	10.00	20.00	Walker Interactive Systems	13.13	-0.44	-3.3
WALL	39.13	18.25	Wall Data Inc.	17.00	-0.25	-1.4
WANG	30.06	16.00	Wang Laboratories Inc.	19.06	-0.44	-2.2
AMZN	30.00	93.75	Amazon.com	21.50	0.94	3.8
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EXCT	27.88	3.00	Excite, Inc.	14.88	-2.25	-13.1
SEEE	11.00	4.50	Infoseek Corp.	5.94	0.94	10.5
LCOS	27.25	0.00	Lycos Inc. (H)	26.73	7.50	39.0
NETC	22.50	7.00	Netcom On-Line	10.88	-0.06	-0.5
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PSIX	30.00	0.00	PSINet	4.00	-0.13	-2.0
QOEX	0.00	2.00	Quantaworks Corp.	2.50	0.29	1.2
RAPT	39.75	0.00	Raptor Systems	11.81	-0.06	-0.5
SCUR	14.50	4.75	Secure Computing Corp.	0.00	-0.06	-1.1
SPYG	20.00	9.00	Spyglass Inc.	0.00	-0.44	-0.6
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LSCC	71.50	24.00	Lattice Semiconductor	46.75	0.00	5.8
LSI	60.00	30.13	LSI Logic Corp	32.06	-0.44	-1.3
MCRL	20.00	0.00	Micrel Semiconductor Inc. (H)	23.50	0.25	-0.6
MU	40.56	20.38	Micron Technology	44.00	1.25	2.9
MOT	90.50	44.13	Motorola Inc.	78.25	-3.94	-0.6
NSM	22.38	15.13	National Semiconductor	20.00	1.10	5.5
TXN	131.31	20.00	Texas Instruments	110.19	-0.06	-0.5
VLSI	44.81	12.00	VLSI Technology	21.00	-0.25	-0.6
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EMLX	21.00	17.25	Emulex Corp.	20.00	0.13	0.5
ESCC	30.00	26.00	Emmons and Sutherland (H)	20.00	1.13	3.8
EXBT	17.00	9.00	Exabyte	10.00	-0.31	-2.8
HSLF	5.63	1.13	Intelligent Info Systems	1.31	0.00	2.6
IOM	27.00	12.63	Iomega Corp	22.31	-0.06	-2.5
IPLS	2.75	0.94	IPL Systems Inc.	0.00	0.00	9.2
KMAG	30.75	15.31	Komag Inc.	17.13	-1.31	-0.6
MTSI	30.00	10.00	Micro Touch Systems Inc. (H)	20.00	0.00	2.8
MTIC	9.06	1.00	MTI Technology Corp.	7.00	0.44	0.5
PNCL	0.75	0.00	Pinnacle Micro Inc.	0.00	0.00	0.0
AQM	0.00	0.00	QMS Inc.	2.75	-0.19	-6.4
QNTM	33.00	7.13	Quantum Corp. (H)	23.00	0.00	0.5
RDUS	2.19	0.50	Radius Inc.	0.53	0.00	0.0
SEG	56.25	22.00	Seagate Technology	48.56	-2.44	-0.6
SOS	19.63	0.75	Storage Computer Corp.	12.75	0.63	0.5
STK	54.38	33.63	Storage Technology	48.56	-1.31	-2.8
TEK	30.63	27.00	Tektronix Inc.	25.81	-3.69	-0.6
WDC	54.75	20.00	Western Digital Corp. (H)	30.21	1.00	2.0
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AMSY	30.13	15.75	American Mgmt. Systems	22.75	-1.75	-7.4
ANLY	23.00	17.00	Analytics Int'l. (H)	15.63	-3.63	-0.6
AUD	30.44	20.00	Auto Data Processing (L)	44.81	-1.19	-0.6
BDMI	30.75	19.75	BDM International Inc.	25.63	-0.06	-2.3
CATP	28.56	21.38	Cambridge Tech. Partners	22.13	-1.81	-0.6
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KSA	20.00	19.00	Kasna Inc.	44.56	-2.50	-4.3
MICA	20.00	13.31	Micrognosis Inc. (H)	25.44	0.00	11.2
PAYX	42.56	20.00	Paychex	34.75	-2.88	-7.6
PMS	57.00	33.13	Policy Management Sys. (H)	57.00	2.44	0.0
REY	20.50	13.75	Reynolds and Reynolds	18.19	0.00	0.0
SCBI	27.00	20.00	SCB Computer Tech. Inc.	25.63	0.75	2.0
SEIC	20.00	30.75	SEI Corp.	28.00	-0.61	-0.8
SMED	61.75	36.75	Shared Medical Systems	48.25	-0.69	-1.6
SSPE	30.30	10.00	Software Spectrum Inc.	14.30	1.53	-0.8
SDS	20.63	27.30	Sunguard Data Systems	48.56	-0.50	-1.0
VBT	20.00	0.00	VanStar Corp.	15.00	1.00	7.3

KEY: (H) = New annual high reached in period (L) = New annual low reached in period

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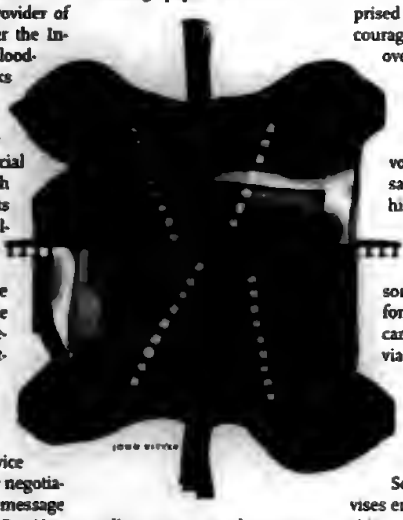
UPS strike boosts E-mail traffic

CONTINUED FROM COVER1

outsourcer Fabrik Communications, Inc. in San Francisco, saw a 20% increase in its message volume during the standoff. And officials at NetDox, Inc., a Deerfield, Ill.-based provider of secure documents over the Internet, said they were flooded these past few weeks with inquiries about their service.

Another West Coast company, a commercial real estate firm with 3,500 employees, saw its Internet message volume hit a two-month high of about 1,700 messages in one day shortly before the strike ended, largely because agents transmitted contracts via E-mail.



HELP DESK CALLS

As United Parcel Service of America, Inc.'s labor negotiations hit a stalemate, message volumes held steady at Bay Networks, Inc.'s Santa Clara, Calif., facility, said Carolyn Schierholz, who oversees groupware and messaging applications at the company. "But we had more calls than usual to the help desk from people wanting to send files that were larger than we usually permit," she said.

Internet mail is generally seen as a welcome alternative to sending paper documents to trading partners and customers because it is inexpensive and fast. Barring a network outage, most IS departments view it as an acceptable way to ferry daily correspondence.

But there was some concern about using Internet E-mail — which many people still perceive as insecure — to send sensitive documents such as contracts, proposals and reports.

"Frankly, this kind of surprised me because we don't encourage document exchange over the Internet," said a mail administrator at a large shoe company who requested anonymity. He said the higher volume of Internet messages and attachments at his site was somewhat alarming. "Our corporate policy is that if the document isn't something you'd be comfortable sending on a postcard, you shouldn't send it via E-mail," he said.

Analysts said most companies are reluctant to rely on Internet mail to deliver critical business documents.

Schierholz said she advises end users not to send sensitive corporate documents outside the corporate firewall.

"E-mail, particularly Internet E-mail, is not yet perceived as reliable and secure," said Tim Sloane, an analyst at Aberdeen Group, Inc. in Boston.

Services such as those offered by NetDox, which guarantee secure document delivery via E-mail, are still in their infancy, he said.

Specifically, Internet mail lacks security because messages traverse the public Internet unencrypted. At the same time, delivery times are affected by overall Internet traffic.

INTERNET MAIL WEAKNESSES

Problem	Fix
Security	Widespread implementation of S/MIME in mail clients and [illegible] signatures
Sending and viewing attachments	MAPI 4-compliant clients and servers
Reliability	Network upgrades

GLIMPSE OF THE FUTURE?

Internet E-mail advocates said the fact that end users turned to their in-boxes instead of their mailboxes foreshadows the way workers will use E-mail to send documents because it is convenient and inexpensive.

Advocates say encryption technology such as Secure Multipurpose Internet Extensions (S/MIME) and digital signatures — though not yet widely implemented — can button up many of the security holes in Internet mail.

Those technologies are expected to be widely supported in mail clients and servers by next year.

Dan Barth, chief information officer at Pinnacle Brands, Inc., a sports trading card company in Grand Prairie, Texas, said he expects the volume of Internet mail, which has been growing at fever pitch for six months at his company, to continue even after normal package delivery services have resumed. "We're all looking for ways to more efficiently communicate with our customers, and sending documents via the Internet is one way of doing that," he said.

"Data shouldn't travel in trucks," said Chris Logan, president of Fabrik. E-mail is a much faster method that goes directly to the individual, he said.

Indeed, the U.S. Postal Service is prepping its own electronic-document delivery system, and UPS is partnering with NetDox to carry secure electronic documents over IP networks. □

New job candidates give IS the business

CONTINUED FROM COVER1

prime example. He has a degree in biology and worked for two years as a research assistant at Dana Farber Cancer Institute before enrolling in a 10-week client/server development certificate program sponsored by Clark University in Worcester, Mass.

Youmell began experimenting with computers at Dana Farber, figuring out new ways to streamline and automate various lab operations. When he graduates next week, Youmell hopes to get an IS job in the health sciences arena.

"I've always felt that how good a programmer and developer you are depends on how well you know your data. As someone who knows science pretty well, and having been exposed to the medical field, I can really use that as a feather in my cap," Youmell said.

FISHING FOR HELP

Recruiter Fernando Delgado at Atlanta-based Vanstar Corp. specifically trolls the marketplace for career changers.

Where others may see technology newcomers, Delgado sees opportunities to groom highly motivated individuals for key positions at the $2.2 billion network integration company.

Most career changers are knowledgeable in certain business areas or a particular industry, Delgado said. "But what they don't have are all the bad habits on the systems engineering side. You can pretty much mold them, as opposed to hiring someone with more experience who also has a lot of old luggage," he said.

Another plus for career changers is high motivation and eagerness to learn even more new skills.

Many, including David Murphy, 28, have spent thousands of dollars in savings or taken out loans to support themselves while attending classes and working in labs for up to 16 hours per day.

Murphy, also a student in the Clark University client/server program, has four years of experience in the mental health care field. He also worked for two years as an assistant manager in the hospitality industry.

Now, "I want to get into a company that wants to support me and help me to grow," Murphy said.

Bob Dougherty, IS manager at Rollins Leasing Corp. in Wilmington, Del., said he looks to hire career changers whose hobbies include PCs and "generally fooling around with computers."

Rollins then gives new hires additional training and pairs them with more senior programmers and project leaders on team-based projects.

COURSE WORK

Extensive education also is typical of many career changers.

Larry Tourangeau was a blackjack dealer at a casino before he enrolled in a month-long intensive course in Cobol programming and IBM mainframe skills at Complete Business Solutions, Inc. in Farmington Hills, Mich.

But his resume also includes a college degree in international relations and several credits toward a business degree.

Alex Lau, 35, a student in Chubb Computer Services' Top Gun training program in Parsippany, N.J., holds graduate degrees in business administration, finance and international relations.

The Top Gun program specifically recruits professionals with extensive business education and expertise but little or no technology training.

Recruits then go through four months of intensive technical training before they are placed in IS posts at Chubb's client companies, which include AT&T Corp., Bristol Myers-Squibb Co. and New York Life Insurance Co.

Lau, for example, is headed for a post at New York-based CDS Corp., which specializes in developing database applications for financial institutions.

"I'll be developing applications for traders, which is a dovetail with my experience as a commodities trader and international business background," he said. □

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COMMENTARY

Novell dead? Not on your life

David Coursey

There are a number of people who believe Novell is essentially dead. They are wrong. Let me tell you what's been going on at Novell and why I believe the company will continue to be an important networking vendor for the foreseeable future.

It's important to note that Novell has more than $1 billion in the bank. And it maintains a very respectable worldwide market share — a declining share, to be sure, but the company still boasts a huge installed base that is tremendously loyal.

What Novell hasn't had is leadership. My friend Robert Frankenberg never got control of the company during his tenure as chairman and CEO. As a result, Novell continued to be run like a company that was supposed to be growing. Bonuses got paid like clockwork, and real goals were few and far between. Lacking a real attachment to customers or the outside world in general, Novell became a very political, sometimes evil place. Think of it as the dance band on the *Titanic*.

That's what my other friend, Eric Schmidt, seemed to have found out when he took over after Frankenberg's departure. Many have criticized Schmidt for not moving more quickly. But my inside sources say the company was in far worse shape when he arrived than anyone — including Novell managers — had realized. Schmidt, I believe, realized what outsiders had been saying for a few years: Novell was dying and without a major change in attitude and significant cost-cutting, it soon would cease to be important to anyone.

The question that remains is whether Schmidt arrived — and helped force this realization — too late. The company's big layoff, which cut the number of senior managers in half and reduced the number of total staff by nearly 20%, seems to have caught people's attention. Also catching their eye was Novell's sell-off of the old WordPerfect campus in Orem, Utah, and its consolidation down the road at Novell headquarters in Provo.

Much more has happened. The upshot is that Schmidt seems to have the company in control. That bodes well, but it clearly isn't enough. The world doesn't really want the forthcoming faster versions of NetWare as much as it wants a high-performance platform for Java server applications. Given Schmidt's background as chief technology officer at Sun, it wouldn't surprise anyone to see Java running atop NetWare.

More important, Novell needs to start explaining its role in an increasingly Windows NT- and Internet-dominated world. But Schmidt has been playing this close to the vest, and it may be next spring before we see the products the company is working on. After that, Novell might spend some of its billion-dollar bank account to make acquisitions. All this makes me feel much more positive about Novell than I have in a while. Novell users still have some waiting to do, but the light at the end of the tunnel no longer seems to be attached to a speeding locomotive. The worst is over at Novell, but it will take time for the improvements to become evident to customers.

• • •

This is the last of my weekly columns. Beginning next week, I'll share this space with three alternating writers: Bill Laberis, former editor of *Computerworld*; Dan Gillmor, computing editor at the *San Jose Mercury News*; and Allan E. Alter, senior editor of *Computerworld*'s Managing section. This is a great lineup, and I couldn't be more thrilled to appear in such company — all of whom I consider good friends. See you in three weeks. □

Coursey, an analyst and consultant, is editor of "coursey.com," an online newsletter available at www.coursey.com. His E-mail address is david@coursey.com.

Pass the envelopes, please

David Moschella

If nothing else, the travails of Digital during the Robert Palmer era comprise a near-perfect real-life example of the management lampoon commonly referred to as the "three envelopes joke." Here is Digital's reenactment:

The story begins in 1992 with an imaginary final meeting between new CEO Palmer and Digital's departing founder, Ken Olsen. As part of their handover ritual, Palmer, as much out of obligation as interest, asks his predecessor for any final advice. Having expected the question, the weary but always svuncular Olsen says, "I don't have any advice, but when things get difficult, look to these three envelopes." Palmer is a bit mystified, but he dutifully takes the envelopes, puts them in a drawer and soon forgets about them.

A few months later, Palmer's Wall Street honeymoon has ended. Digital's situation is more grim and intractable than he had been led to believe, and he knows his own promises of a quick turnaround soon will be broken. Pondering what to do, he vaguely recalls the Olsen meeting and manages to find the three envelopes. He opens the first one, which contains just three words: "Blame your predecessor."

Palmer gets the message. It was that out-of-touch authoritarian Olsen who created this mess. Under Palmer's watch, Digital's own PR machine helps recycle Ken's greatest misses: Unix is snake oil; Unix is like a Russian truck; there's no need for home PCs, and so on. By piling on during the media's unseemly rush to tarnish the once-great man's image, Palmer buys himself some time.

But blaming your predecessor gets old fast and doesn't solve today's problems. As additional disappointments and pressures mount, Palmer clearly needs something new. He instinctively reaches for the second envelope. This time, there is just one word: "Reorganize."

Palmer likes this idea so much he uses it three times. In 1992, he announces a new customer-centric Digital that revolves around industry-specific marketing groups. In 1994, it becomes clear that this services-driven approach leaves Digital's product groups insufficiently unaccountable. So Palmer reverses direction and sets up autonomous PC, Alpha, storage and network product divisions.

Finally, this year, when most of these independent groups have proved they can't cut it in the marketplace, Palmer again shifts gears and sets up a more holistic structure not that different from the one he inherited.

Unfortunately for Palmer and Digital, none of these shifts stem the company's eroding industry position. Having tried almost everything he can think of, and with shareholders and pundits openly calling for his resignation, Palmer reaches for the third envelope.

It says: "Prepare three envelopes."

That's the punch line. Palmer has, of course, followed the script to this old gag nearly to the letter. But he added a twist.

With the end in sight, Palmer decides to put his own stamp on the process and provide some advice for his eventual successor. He reaches for a fourth envelope and writes, "Sue someone." End of story.

Of course, whether Palmer survives at Digital isn't the issue. It's not at all clear that anyone else would have done much better. The lesson of this totally fictional account is that Leo Tolstoy was wrong. In *Anna Karenina*, the Russian novelist wrote, "Happy families are all alike; every unhappy family is unhappy in its own way."

The lesson of the three envelopes is that even unhappy families have their patterns. Whether you're looking at Digital, Apple, Unisys or Novell today or at Wang, Prime Computer or Control Data yesterday, the cycle of decline often retains its own distinct form. □

Moschella is senior vice president of research at Computerworld, Inc. His Internet address is david_moschella@cw.com.

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Dispatches & images from the fringes of the electronic frontier

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Expenditures on second phone lines (1996): **$3B**

Americans who consider office computers a "necessity": **34%**

Americans who consider office computers a "luxury": **59%**

Number of commercial laundry machines equipped to read smart cards: **4,000**

Projected increase in Internet commerce 1996 to 1997: **1,000%**

Estimated number of travel trips booked online (1997): **3M**

Estimated amount banks will spend on the year 2000 problem (worldwide): **$80B**

Number of intranet browsers installed in the U.S. Department of Defense: **1.5M**

Number of users of Coopers & Lybrand's extranet: **74,000**

Sources: International Data Corp., Framingham, Mass.; Roper Starch Worldwide, New York; Bull HN Information Systems Inc., Billerica, Mass.; Forrester Research Inc., Cambridge, Mass.; Killen & Associates, Inc., Palo Alto, Calif.; U.S. Department of Defense, Washington; Coopers & Lybrand LLP, New York

JEFFERSONIAN LAPTOP

Laptop word processing is nothing new. Thomas Jefferson — founding father and road warrior — designed this mahogany lap desk in May 1776 and used it to draft the Declaration of Independence during a trip to Philadelphia. The original is in the Smithsonian, but a $495 replica is available from cabinetmaker Michael Barba in Doylestown, Pa. *(barbchal@mail.pil.net)*. No batteries required, and pilots won't mind if you use it in flight. Today's laptops are five to 10 times more expensive than Jefferson's lap desk and probably hold far fewer brilliant thoughts.

Cubicles rule!

Despite the scorn of "Dilbert," cubicles are taking over corporate America. Office-furniture giant Haworth, Inc. in Holland, Mich., reports cubicle sales soared 26% in the first quarter this year compared with the same period last year. Why? Managers believe cubicles promote collaboration, and the furniture is easy to reconfigure.

Inside Lines

What does he say when he wins?

Ameritech CEO Richard C. Notebaert issued this statement last week: "This decision is a big step forward; it's a victory not only for Ameritech, but also for the entire communications industry, and especially for customers because it advances the day when [they] will reap the benefits of competition." Of course, he was referring to the fact that the FCC last week *rejected* Ameritech's bid to sell long-distance service in Michigan. Continuing his spin control, Notebaert said the rejection would be positive because it would finally mean the FCC would render a set of guidelines for companies entering the long-distance market.

IS delivers, once again

An IS manager at United Parcel Service had to cancel his presentation at the Enterprise Management Summit conference in Washington last week because of the strike. Seems project manager Randy Smith and about 1,000 others were on the road making deliveries, leaving behind a skeleton crew in UPS' operations center in Mahwah, N.J., to maintain systems and networks.

Cabletron adds to switching line

We hear Cabletron Systems this week will unveil a line of switches that will let IS managers simultaneously support shared and switched user connections. That will help companies move from a shared system to switched ones, as needed. Cabletron confirmed something's up but wouldn't cough up details.

Oh yeah? Well, we got there first

Maybe it's because it's tired of being dubbed the stealth marketer of the computer industry. But this time, Digital Equipment is taking the fight into enemy territory. The Maynard, Mass.-based company will aggressively pitch its 64-bit Unix technologies and applications at Hewlett-Packard's HP World Show in Chicago this week. Digital has taken a booth where it will demonstrate some of its 64-bit applications, porting tools and integration tools and generally tell HP users just how far behind HP is when it comes to 64-bit technology.

A Web window into the mainframe world

There has been a slew of products recently to let users access mainframe data from the Web. But what about letting IS managers get into the act? Now IBM is developing a way to let mainframe systems managers get to the S/390 Systems Management Console from a Web browser. Managers will be able to get a subset of functionality of a typical S/390 systems management console within their Web browser and perform basic administrative duties from remote locations.

WC, phone home

When it comes to unwanted telephone calls, Britons are more likely to be annoyed by misprogrammed machines than by malevolent humans, the London-based *Electronic Telegraph* reports. Caller ID and callback services have cut down on conventional obscene calls. But the calls are being replaced by a new wave of devices such as vending machines and even public bathrooms designed to phone home when supplies run low. The problem: Sometimes the calling number is entered incorrectly. "An elderly lady was rung up through the night by a public toilet in a Leicester park," Anne-Marie Kennedy at British Telecom told the newspaper. An estimated 8,000 people a month suffer from such snafus.

Socks with holes in them won't be welcomed at Fuego Technology's press conference this week at the Java Internet Business Expo in New York. The Dallas-based company, founded in July by InterSoft Argentina S.A. to develop business process management systems, is luring reporters and analysts to a press conference by offering custom-made, leather Western boots — one pair per publication or firm, please. Reporters willing to trade their objectivity for shoe leather will get their feet measured at the press conference. If you have news, get in touch with news editor Patricia Keefe at (508) 820-8183 or patricia_keefe@cw.com. She's the sole of discretion.

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Dispatches & Images from the fringes of the electronic frontier

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